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ACCOUNTS AND PAPERS:

THIRTY-NINE VOLUMES.

—(9.)—

NAVY.

CRIME AND PUNISHMENT: MASTERS; TURRET SHIPS.

Session

1 *February* —— 10 *August* 1866.

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THIRTY-NINE VOLUMES:—CONTENTS OF THE

NINTH VOLUME.

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CRIME AND PUNISHMENT (NAVY).

RETURN to an Order of the Honourable The House of Commons,
dated 4 July 1865;—*for*,

COPY "of the REPORT on CRIME and PUNISHMENT in the NAVY, in the Year 1863."

Admiralty,
4 June 1865.

C. H. PENNELL,
Chief Clerk.

(*Mr. Childers.*)

Ordered, by The House of Commons, *to be Printed,*
18 *May* 1866.

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REPORT on CRIME and PUNISHMENT in the NAVY, in the Year 1863.

Sir, Admiralty, S.W., 1 June 1865.

1. HEREWITH I have the honour to forward, for the inspection of my Lords Commissioners of the Admiralty, a series of statistical tables showing the amount and particulars of the crimes and punishments in the Navy between the 1st of January and 31st of December 1863.

2. These tables, as you are aware, are based on the quarterly punishment returns which are sent into office from every ship in commission. More than a thousand such returns were received for the year 1863. They are, in the larger class of ships, very voluminous; and each one of them has to be strictly scrutinised, and an abstract made of the offences and punishments; for, as I stated last year, the abstracts as rendered from the ships cannot be relied on, since in classifying the offences, different views have been held by different officers, and the same offences in different ships have been entered in different columns. A late order has defined more minutely the method of classification; and the labour of reducing them in office, which is now very great, will, it is hoped, be lessened.

3. In periodical statistics bearing on the same subject, it is above all things necessary, for the convenience of those who may wish to compare one period with another period, that the same general method of classification should be observed from time to time. The classification of offences adopted for these tables, is in conformity with the classification of crimes and offences as given in the summary punishment tables of 1861, and their Lordships' late order on the subject.

4. The proportions of crime and punishment in the same ships during the years 1862 and 1863 vary considerably. In some cases they have improved, in others they have gone back. It would not be right in me to point out particular ships where these differences occur. Commanding officers who read these tables will make their own comparisons, and will, doubtless, carefully inquire into the probable causes that may have led to an increase of crime; and this very inquiry, calmly and logically followed out, will, it may be expected, lead to their adopting such precautionary measures as may have the effect of placing their ships in a better position for the future. Nor will the commander only be interested in this question. Every officer has a present and prospective interest in the condition of the ship to which he is attached, and, no matter what his rank may be, or to what class he belongs, he may contribute something, both by example and precept, to the good order, discipline, and efficiency of the crew. Without the cordial and zealous assistance of the officers in general, the efforts of the officer in command to prevent offences are, to an extent, paralyzed. The officers—especially the lieutenants of divisions and junior officers—have an opportunity of acquiring a moral control over the men, the result of which, when properly exercised, is scarcely less efficacious in preventing crime than are the penal laws by which the navy is governed. There is, perhaps, no part of the training of a young naval officer of more importance to the future well-being of the service, than that which teaches him how best to command and manage large bodies of men with the least amount of punishment.

5. But although it might be invidious to hold up particular ships in this report, it is fairly within the province of the compiler of the statistical portion of it, to discuss the general results as shown in the Abstract at page 72. Therefore, with your permission, I will go through the several crimes and punishments therein set forth, premising that, on the whole, it appears that in 1863 there was an increase of offences as compared with 1862. Now, although this is proved by the figures, I believe myself that, in reality, there was not an increase of crime; but that in 1862, before the new form of punishment return came into full operation, many officers omitted from their reports such offences and punishments as they considered to be of a very minor description. Some of them, indeed, made no mention of offences committed by boys, and these form a large proportion of the totals for the year 1863. In my report for 1862, although I had no positive evidence of the fact, I mentioned a ship in which it was doubtful whether all the offences had been recorded. In the last quarter of that year the captain was superseded, and the succeeding captain, in his first subsequent report, says,—"I have to remark with regard to the great increase in the number of punishments during the last as compared with the former quarter, that, *until this quarter, it had not been the system to enter cases of leave breaking for*

a period

a period of less than twelve hours." Now, considering that by far the larger proportion of cases of improper absence are for less than twelve hours, two or three line-of-battle ships in addition to the one in question would, by following the same course of suppression, be sufficient to turn the scale against the year in which all offences were recorded. Since 1862, however, there has been no opportunity of purposely withholding the report of offences, for all the returns subsequent to that time have the following certificate on them signed by the captain:

"I hereby certify that the whole of the punishments inflicted on board this ship, during the period embraced in this return, have been entered in the said return; and that the punishments are in accordance with the regulations."

6. The General Abstract at page 72, will be found worthy of a careful perusal. Passing over the nineteen capital crimes, recorded under the head of "Offences of the First Degree," I proceed to make a few observations on other points of the abstract; and in the first instance, as I have given lists of the several ships in their order of merit with reference to certain offences and punishments,* it may be convenient that here I should follow the same plan with the totals applicable to the different squadrons or divisions of the fleet. Commencing then, with Insubordination, the squadrons stand thus:—

INSUBORDINATION.

1. "Home."
2. Coast-guard Ships.
3. Mediterranean.
4. Channel.
5. Pacific.
6. West Coast of Africa.
7. Cape of Good Hope.
8. South-east Coast of America.
9. East Indies and China.
10. North America and West Indies.
11. Australia.

THEFT.

1. Cape of Good Hope.
2. Coast-guard Ships.
3. Mediterranean.
4. West Coast of Africa.
5. North America and West Indies.
6. East Indies and China.
7. South-east Coast of America.
8. "Home."
9. Channel.
10. Pacific.
11. Australia.

DRUNKENNESS.

1. "Home."
2. Coast-guard Ships.
3. West Coast of Africa.
4. Cape of Good Hope.
5. Channel.
6. Pacific.
7. North America and West Indies.
8. Australia.
9. Mediterranean.
10. East Indies and China.
11. South-east Coast of America.

IMPROPER ABSENCE.

1. West Coast of Africa.
2. Cape of Good Hope.
3. Pacific.
4. Australia.
5. East Indies and China.
6. Mediterranean.
7. South-east Coast of America.
8. North America and West Indies.
9. "Home."
10. Coast-guard Ships.
11. Channel.

MINOR OFFENCES.

1. Coast-guard Ships.
2. "Home."
3. Pacific
4. South-east Coast of America.
5. Cape of Good Hope.
6. North America and West Indies.
7. East Indies and China.
8. West Coast of Africa.
9. Mediterranean.
10. Channel.
11. Australia.

CORPORAL PUNISHMENT.

1. Coast-guard Ships.
2. "Home."
3. Channel.
4. South-east Coast of America.
5. Cape of Good Hope.
6. Mediterranean.
7. Pacific.
8. North America and West Indies.
9. East Indies and China.
10. West Coast of Africa.
11. Australia.

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* *See* paragraph 7.

IMPRISONED.

1. Pacific.
2. South-east Coast of America.
3. East Indies and China.
4. North America and West Indies.
5. West Coast of Africa.
6. Cape of Good Hope.
7. Mediterranean.
8. "Home."
9. Coast-guard Ships.
10. Channel.
11. Australia.

SECOND CLASS FOR CONDUCT.

1. "Home."
2. Coast-guard Ships.
3. Cape of Good Hope.
4. West Coast of Africa.
5. North America and West Indies.
6. Pacific.
7. East Indies and China.
8. Australia.
9. Mediterranean.
10. South-east Coast of America.
11. Channel.

7. The following are lists of the ships on the several stations, in their order of merit, under the different heads specified:—

NOTE.—*These lists do not include such ships as have not sent at least two quarterly returns into office during the year.* Where the Returns are for less than the whole year the name of the ship is printed in *italics*.

I.—SHIPS AT HOME, other than the Channel Squadron, Coast-guard Ships, and Drill Ships.

INSUBORDINATION.—Average Convictions, 81·67 per 1,000.

This division continues to hold the most creditable position of any in the Fleet with regard to subordination. The Reserve Guard Ships are especially to be commended, and their credit is the greater when it is remembered that they have a fluctuating complement of men, many of whom are comparatively strangers to the duties and requirements of men-of-war's men,—and who, from the nature of the service of the Reserve, are necessarily employed in small detachments, and, therefore, it might be assumed, more likely to fall into irregularities than perhaps any other men in the Navy. These remarks apply chiefly to the class of stokers who are borne in the Reserve for disposal, or for service in steam-ships not in commission. The Gunnery Ships and Training Ships also hold very good positions.

Below the Average.				*Above the Average.*			
Enchantress Pigmy Saturn Victoria and Albert	00·00	Excellent	49·16	*Duke of Wellington*	89 05	Adventure	190·84
		Indus	52·22	Supply	90·91	*Orontes*	200·00
		Fisgard	55·55	Victory	106·42	*Naval Barracks at Sheerness*	238·81
		St. Vincent	60·87	Himalaya	112·82	Fox	261·9[illegible]
Dasher	8·25	Asia	61·26	Geyser	139·07	*Columbine*	338·03
Implacable	13·24	Boscawen	62·50	Britannia	142·22	Formidable	347·28
Cambridge	23·67	Royal Adelaide	65·98	*Racoon*	144·07	Wye	410·71
Impregnable	30·38	Osborne	68·49	Dee	145·45		
Wellesley	33·68	Hastings	76·19	Megæra	158·62		
Cumberland	39·52	Industry	80·00	*Alert*	177·08		
Jackal	40·00			*Canopus*	185·41		

THEFT.—Average Convictions, 14·11 per 1,000.

This crime has rather increased since the former report. The number of petty cases of pilfering among the boys in the Training Ships has materially contributed to this result.

Below the Average.				*Above the Average.*			
Alert *Columbine* *Enchantress* Fox Industry Megæra Osborne Saturn Supply	00·00	Hastings	4·76	Victory	16·51	Adventure	38·17
		Cumberland	5·49	Wye	17·86	Fisgard	39·68
		Cambridge	5·92	Dee	18·18	Jackal	40·00
		Geyser	6·62	Implacable	19·87	Pigmy	45·45
		Indus	7·83	Formidable	20·92		
		Victoria and Albert	8·26	*Orontes*	23·08		
		Wellesley	8·42	Excellent	23·70		
		Naval Barracks at Sheerness	9·25	Himalaya	25·64		
		Canopus	12·16	Dasher	26·55		
Duke of Wellington	3·71	*Racoon*	12·71	St. Vincent	31·30		
Asia	3·98	Britannia	13·33	Boscawen	35·00		
Royal Adelaide	4·12			Impregnable	36·99		

Drunkenness.—Average Convictions, 103·72 per 1,000.

Although this offence has increased since the former report, it is in this division far below the average in any other. The proportion, in fact, is just half of that for the whole Navy abroad and at home. All things considered,—the amount of leave given, and the temptations which beset the men when they are on leave,—I think it may be said that the vice of drunkenness is not nearly so prevalent among seamen at home as it is popularly supposed to be.

Below the Average.				*Above the Average.*			
Enchantress	00·00	Pigmy	45·45	Supply	113·64	*Alert*	260·42
Saturn		Cambridge	57·69	Britannia	115·55	Himalaya	271·80
Impregnable	10·57	Excellent	59·82	Royal Adelaide	125·77	*Canopus*	273·56
Victoria and Albert	16·53	Hastings	61·90	Cumberland	130·63	Adventure	274·81
Boscawen	17·50	Indus	65·27	Dee	163·64	Formidable	334·73
St. Vincent	26·09	Wellesley	67·37	*Duke of Wellington*	176·25	*Naval Barracks at Sheerness*	457·71
Dasher	26·55	Geyser	72·85	*Orontes*	176·92		
Fisgard	27·78	Industry	80·00	*Racoon*	182·20	*Columbine*	718·31
Implacable	30·91	Osborne	82·19	Wye	196·43		
Asia	37·41	Victory	99·08	Fox	226·19		
Jackal	40·00			Megæra	255·17		

Improper Absence.—Average Convictions, 909·05 per 1,000.

The average is below that of the whole of the Home force. The offence, however, has apparently increased since 1862, but I account for this, in a great measure, from more complete reports being rendered since that year.

Below the Average.				*Above the Average.*			
Saturn	00·00	*Enchantress*	428·57	Jackal	920·00	Supply	1681·82
Impregnable	35·67	Cambridge	445·27	Royal Adelaide	946·39	Fisgard	1742·06
Victoria and Albert	49·59	Indus	540·47	Britannia	1044·44	Geyser	1761·59
St. Vincent	83·48	Excellent	608·35	Victory	1256·88	Adventure	1763·36
Implacable	119·21	Osborne	684·93	Fox	1285·72	Formidable	1928·87
Dasher	150·43	Megæra	703·45	*Orontes*	1307·69	*Duke of Wellington*	2204·08
Boscawen	212·50	Asia	830·55	Industry	1340·00	Wye	2392·86
Wellesley	227·37	Himalaya	841·03	*Alert*	1468·75	*Canopus*	2550·15
Hastings	233·33	Cumberland	873·76	*Columbine*	1507·04	*Naval Barracks at Sheerness*	3293·53
Pigmy	409·09	*Racoon*	894·07	Dee	1545·45		

Minor Offences.—Average Convictions, 645·11 per 1,000.

The same remarks apply to these offences as are given in the Table of Improper Absence.

Below the Average.				*Above the Average.*			
Enchantress	00·00	Fox	226·19	*Canopus*	662·61	Implacable	841·06
Saturn		Dee	254·55	Victory	671·56	Excellent	841·99
Cumberland	28·54	Indus	261·09	*Naval Barracks at Sheerness*	701·46	St. Vincent	1078·26
Pigmy	45·45	Supply	272·73			Boscawen	1285·00
Dasher	79·65	Industry	280·00	Magæra	710·24	Formidable	1573·22
Asia	96·26	Hastings	419·05	Britannia	724·44	*Alert*	1604·17
Victoria and Albert	99·17	Impregnable	453·10	Geyser	774·83	*Racoon*	1614·40
Jackal	100·00	*Duke of Wellington*	486·09	Himalaya	784·62	Royal Adelaide	1703·09
Fisgard	186·51	Cambridge	563·71	*Orontes*	830·77	*Columbine*	4239·44
Wellesley	187·37	Wye	571·43				
Osborne	205·48	Adventure	580·15				

Flogged.—Average Number, 10·69 per 1000.

There is a slight increase in the proportion of corporal punishments, which has been caused by the boys. In the whole division there have been only 18 *men* flogged, and of that number five were by sentences of courts-martial.

Below the Average.				*Above the Average.*			
Cambridge	00·00	Cumberland	1·10	Excellent	11·29	Dasher	26·55
Dee		Indus	1·74	Megæra	13·79	Implacable	28·70
Duke of Wellington		Asia	3·18	Wellesley	14·74	Boscawen	30·00
Enchantress		Fisgard	3·97	Britannia	17·78	*Racoon*	33·90
Fox		Hastings	4·76	Impregnable	18·49	St. Vincent	36·52
Industry		*Naval Barracks at Sheerness*	4·97	Himalaya	20·51	Formidable	37·66
Jackal				Adventure	22·90	*Columbine*	42·25
Osborne		Royal Adelaide	6·19				
Pigmy		Geyser	6·62				
Saturn		*Orontes*	7·69				
Supply		*Canopus*	9·12				
Victoria and Albert		Victory	9·17				
Wye		*Alert*	10·42				

Imprisonment.—Average Number, 42·84 per 1,000.

There is a slight decrease in the proportion of imprisonments in this division. The proportion is considerably below that of the Home force combined.

Below the Average.				*Above the Average.*			
Himalaya	00·00	*Albert*	10·42	Pigmy	45·45	*Naval Barracks at Sheerness*	84·58
Saturn		Implacable	11·04	*Enchantress*	47·62	Fox	107·14
Supply		Adventure	22·90	Magæra	48·28	Dee	109·09
Victoria & Albert		Cambridge	23·67	Britannia	53·34	*Columbine*	112·68
Impregnable	1·32	Asia	31·03	Industry	60·00	Royal Adelaide	125·77
St. Vincent	1·74	Indus	31·33	*Canopus*	63·83	Jackal	140·00
Boscawen	2·50	Cumberland	31·83	Victory	67·89	Geyser	145·69
Wellesley	6·32	Excellent	33·86	Osborne	68·49	Wye	160·71
Dasher	8·85	*Racoon*	38·14	*Orontes*	69·23	Fisgard	293·65
Hastings	9·52			Formidable	79·50		
				Duke of Wellington	83·49		

In the Second Class for Conduct.--Average Number, 6·7 per cent.

Below the Average.				*Above the Average.*			
Saturn	0·0	Pigmy	4·5	Dee	7·3	Cossack	12·2
Victoria and Albert		Supply	4·5	Royal Adelaide	7·8	Alert	12·9
St. Vincent	0·3	Asia	5·2	Alecto	8·1	Naval Barracks at Sheerness	12·6
Implacable	0·4	Osborne	5·5	Canopus	8·2	Conqueror	14·1
Impregnable	0·4	Enchantress	5·6	Medusa	8·2	Virago	15·5
Boscawen	0·5	Snipe	5·7	Buzzard	8·3	Orlando	16·0
Wellesley	1·1	Britannia	5·8	Duke of Wellington	8·3	Himalaya	16·4
Cambridge	1·5	Jackal	6·0	Wasp	8·3	Geyser	16·7
Shearwater	1·8	Racoon	6·3	Wye	8·8	Adventure	16·8
Hastings	1·9	Victory	6·4	Aurora	8·9	Cadmus	17·1
Dasher	2·7	Vigilant	6·5	Valorous	9·3	Scylla	18·6
Cumberland	3·2	Curaçoa	6·7	Orontes	9·7	Tamar	27·3
Excellent	3·5	Formidable	6·7	Triton	9·7	Egmont	Numbers not in reports.
Indus	4·3			Esk	10·1	Fisgard	
				Megæra	10·4	Gibraltar	
				Falcon	10·7	Leander	
				Fox	10·7	Pandora	
				Columbine	10·8	Pelorus	
				Speedwell	11·1	Termagant	
				Lyra	11·8		
				Industry	12·0		

Note.—A large number of the deserters punished in this division of the Fleet are men who fail to join the Guard Ships at the expiration of their leave after being paid off; also of deserters from ships in different parts of the world, who, on coming to England, are either taken, or give themselves up with the view of being restored to the service. So far as this crime attaches to the crews of the Home ships, and to the supernumeraries in them, it will be seen at page 23 of the report that the division is only excelled in merit by the squadrons at the Cape, on the West Coast of Africa, and in the Mediterranean, where in fact there are but few opportunities of deserting.

II.—THE CHANNEL SQUADRON.

Insubordination.—Average Convictions, 167·92 per 1,000.

Except the Home, and Mediterranean Squadrons, and the Coast Guard Ships, the Channel Squadron has less insubordination than any other. The proportion approximates as closely as possible to the average of the whole Fleet at home and abroad.

Below the Average.				*Above the Average.*			
Black Prince	100·15	Warrior	141·97	*Liverpool*	179·15	Resistance	209·25
Emerald	108·96	*Royal Oak*	148·69	Edgar	201·63	Defence	252·23

Theft.—Average Convictions, 14·56 per 1,000.

This crime has rather increased. It is above the average of the whole of the Home force.

Below the Average.				*Above the Average*			
Edgar	6·81	Resistance	13·22	*Royal Oak*	20·42	Defence	24·55
Liverpool	9·77	Warrior	14·04	*Emerald*	21·79		
Black Prince	12·14						

Drunkenness.—Average Convictions, 215·36 per 1,000.

There has been an increase of drunkenness in this division since 1862; still, except in those squadrons where there is little or no opportunity of indulging in this vice, the Channel Squadron—where the opportunities are ample—continues to hold a conspicuously good position. The worst that can be said of it in this particular is, that it stands below either of the other two Home forces.

Below the Average.				*Above the Average.*			
Royal Oak	128·28	Defence	200·89	Resistance	279·74	Edgar	450 09
Liverpool	166·12	*Emerald*	200·97				
Warrior	166·93	Black Prince	203·34				

Improper Absence.—Average Convictions, 1665·91 per 1,000.

As might be expected from the nature of the duties of this squadron, constantly touching at different ports and places, at almost all of which more or less leave is given to the crews, improper absences are a more frequent source of punishment than in any other portion of the Fleet; but it is probable that, comparing the amount of leave given here with that given in other sea-going squadrons, the proportion of absentees is not greater than the proportion elsewhere; indeed, to judge it by this test, there is every reason to believe that it would occupy the first position.

Below the Average.				*Above the Average.*			
Emerald	1261·50	Resistance	1539·65	Warrior	1784·71	*Royal Oak*	2075·80
Liverpool	1273·62	Edgar	1551·77	Black Prince	1981·79		
Defence	1537·95						

Minor Offences.—Average Convictions, 1490·21 per 1,000.

These offences have increased. Except the Squadron in Australia, the Channel Squadron stands lowest in this respect.

Below the Average.				*Above the Average.*			
Emerald	576·27	Warrior	1338·53	*Liverpool*	1631·92	Resistance	2592·51
Royal Oak	956·27	Defence	1439·73	Edgar	1711·17		
Black Prince	1174·51						

Flogged.—Average Number, 11·55 per 1,000.

This punishment has slightly increased. The proportion, however, is still very low compared with that in other sea-going squadrons; but here imprisonment may be substituted for corporal punishment, an advantage not possessed to the same extent by the squadrons abroad, where climate and a variety of circumstances sometimes render it practically impossible to resort to imprisonment.

Below the Average.				*Above the Average.*			
Liverpool	00·00	*Emerald*	7·36	Black Prince	12·14	Resistance	24·23
Warrior	1·56	Defence	11·16	Edgar	23·16		
Royal Oak	5·83						

Imprisonment.—Average Number, 68·52 per 1,000.

This punishment has increased. With the exception of Australia, it is above the proportion of any other squadron.

Below the Average.				*Above the Average.*			
Warrior	49·92	Resistance	52·86	*Royal Oak*	72·89	Defence	75·89
Liverpool	52·12	Black Prince	65·25	Edgar	74·93	*Emerald*	101·69

In the Second Class for Conduct.—Average Number, 17·8 per Cent.

Below the Average				*Above the Average.*			
Liverpool	8·9	Warrior	13·9	Edgar	18·7	Revenge	25·1
Black Prince	13·0	Royal Oak	14·3	Defence	19·9	Emerald	28·6
				Resistance	21·6		

III.—THE COAST-GUARD SHIPS AND THEIR TENDERS.

INSUBORDINATION.—Average Convictions, 114·22 per 1,000.

For a force which, as a rule, is changed every year, to allow other men to have a turn of home service, and which, therefore, no sooner becomes organized than it is dispersed, the irregularities in this division are really and comparatively very few. With regard to subordination it stands second in the order of merit;—it is slightly in excess of the proportion for the whole of the home force combined, but considerably below the proportion for the Navy in general.

Below the Average.				*Above the Average.*			
Hawke	18·31	Edinburgh	100·00	Russell	120·00	Pembroke	162·96
Colossus	55·67	Ajax	108·70	Majestic	130·79	Hogue	189 66
Dauntless	55·97			Cornwallis	142·34	Blenheim	193·18

THEFT.—Average Convictions, 8·25 per 1,000.

A remarkable decrease of this crime has taken place since the report of the previous year. The squadron now in this respect holds a highly commendable position, which is only excelled by the Cape Squadron.

Below the Average.				*Above the Average.*			
Hawke	00·00	Dauntless	3·73	Ajax	13·04	Edinburgh	16·00
Blenheim	2·27	Pembroke	7·41	Hogue	13·79	Majestic	21·80
Russell	3·08	Colossus	8·25				
Cornwallis	3·65						

DRUNKENNESS.—Average Convictions, 135·97 per 1,000.

In this respect the Coast Guard ships stand second in the order of merit. Especially commendable are the two ships stationed in Ireland, and the "Dauntless" at Southampton. There is a very remarkable contrast between these ships and the ships stationed in Scotland and at Milford.

Below the Average.				*Above the Average.*			
Dauntless	18·66	Ajax	56·52	Majestic	136·22	Hogue	231·03
Hawke	45·77	Colossus	61·85	Russell	150·77	Blenheim	259·09
				Pembroke	158·02	Edinburgh	280·00
				Cornwallis	178·83		

IMPROPER ABSENCE.—Average Convictions, 1411·65 per 1,000.

With the exception of the Channel Squadron, this offence is more prevalent here than elsewhere. It has increased more in proportion than in any other division.

Below the Average.				*Above the Average.*			
Hawke	567·51	Blenheim	1147·73	Hogue	1944·83	Edinburgh	2532·00
Colossus	713·40	Ajax	1347·83	Majestic	2207·08	Cornwallis	2864·95
Dauntless	891·79	Pembroke	1360·49				
Russell	1067·69						

MINOR OFFENCES.—Average Convictions, 501·62 per 1,000.

Of all the forces abroad or at home (except the drill ships, which are exceptional, and should not be placed in comparison with others), the Coast Guard ships are first in the order of merit in their exemption from these offences. They are far below the average for the home force combined, and little more than half the proportion for the whole of the Navy.

Below the Average.				*Above the Average.*			
Hawke	41·19	Russell	350·77	Cornwallis	748·17	Edinburgh	900·00
Colossus	235·05	Hogue	500·00	Ajax	897·83	Pembroke	901·23
Blenheim	297·73	Majestic	501·36				
Dauntless	347·02						

FLOGGED.—Average Number, 3·00 per 1,000.

The decrease of this punishment since the former report is very remarkable. It has fallen from 13,22 per 1,000 in 1862 to 3·00 per 1,000 in 1863. It is not one-third of the proportion for the whole of the home force combined, one-sixth for the forces abroad, or one-fifth for the forces at home and abroad. Unlike most other squadrons in which imprisonments have increased as corporal punishments have decreased, here we find both less, and the inference to be gathered from this fact is clearly this,—that the crimes committed were not of so serious a description in 1863 as they were in 1862.

Below the Average.				*Above the Average.*			
Colossus	00·00	Pembroke	00·00	Hogue	6·90	Majestic	21·08
Cornwallis		Russell					
Dauntless		Ajax	2·17				
Edinburgh		Blenheim	2·27				
Hawke							

IMPRISONED.—Average Number, 67·73 per 1,000.

The remarks under the preceding heading bear also on this punishment. It has somewhat decreased since the last report, but it is still above the average of other divisions, except the Channel Squadron and the squadron in Australia.

Below the Average.				*Above the Average.*			
Hawke	4·58	Dauntless	52·24	Hogue	68·97	Edinburgh	84·00
Russell	12·31	Ajax	63·04	Pembroke	71·61	Cornwallis	105·84
Colossus	16·50			Blenheim	79·54	Majestic	217·98

In the Second Class for CONDUCT.—Average Number, 9·2 per Cent.

Below the Average.				*Above the Average.*			
Hawke	3·2	Russell	7·1	Pembroke	9·6	Majestic	15·2
Colossus	3·7	Edinburgh	8·4	Blenheim	12·5	Cornwallis	16·8
Dauntless	6·3	Ajax	8·5	Hogue	14 5		

IV.—THE SQUADRON IN THE MEDITERRANEAN.

INSUBORDINATION.—Average Convictions, 152·51 per 1,000.

Of all the foreign squadrons the Mediterranean Squadron has the least insubordination. The proportion of convictions on that account in 1863 was, within a fraction, the same as in 1862. It is far below the average for the whole force abroad, and very nearly the same as the proportion for the Navy abroad and at home.

Below the Average.				*Above the Average.*			
Alacrity	63·83	Meeanee	108·20	Magicienne	154·93	Pelican	187·10
Hibernia	75·38	Psyche	120·00	*Cossack*	159·72	Icarus	187·50
Foxhound	84·34	Phœbe	128·05	Procris	166·67	Trafalgar	188·60
Weser	92·59	Wanderer	128·21	Trident	168·42	Cockatrice	193·55
Marlborough	93·87	Liffey	136·18	Orlando	169·43	Revenge	198·09
Firefly	100·00	St. George	149·47	Surprise	179·49	Shannon	329·62
				Chanticleer	185·63	Caradoc	359·37
				Queen	186·25	*Medina*	418·18
				Malacca	186 87		

THEFT.—Average Convictions, 10·60 per 1,000,

The proportion of convictions for this crime remains nearly the same as in the preceding report. It is lower than in any other division, except the Coast Guard ships and the Cape Squadron.

Below the Average.				*Above the Average.*			
Alacrity	00·00	Magicienn	4·69	Liffey	12·20	Shannon	20·04
Caradoc		Hibernia	5·03	Surprise	12·82	Orlando	20·26
Cockatrice		*Queen*	5·73	Phœbe	14·23	Pelican	25·81
Firefly		Chanticleer	5·99	Revenge	16·39	Foxhound	36·14
Malacca		*Cossack*	6·94	Icarus	17·86	*Medina*	54·55
Procris		St. George	7·94				
Psyche		Trafalgar	8·14				
Wanderer		Meeanee	9·73				
Weser		Trident	10·53				
Marlborough	0·96						

DRUNKENNESS.—Average Convictions, 291·17 per 1,000.

There has been a diminution of this offence since the former report, and the Mediterranean Squadron has relieved itself of the opprobrium of being the most drunken. Still the vice continues to prevail to a greater extent than it should do, the proportion being more than double what it is in the home force combined, and nearly half as much again as in the forces at home and abroad.

Below the Average.				*Above the Average.*			
Hibernia	80·40	Phœbe	227·64	Shannon	293·09	Surprise	371·79
Chanticleer	95·81	Malacca	237·37	Icarus	339·29	Orlando	372·01
Trident	136·84	Magicienne	239·44	Pelican	341·93	Firefly	375·50
Meeanee	137·87	Caradoc	250·00	Wanderer	346·15	*Queen*	469·91
Psyche	160·00	Revenge	255·46	*Cossack*	347·22	*Medina*	490·91
Procris	166·67	*Alacrity*	276·60	Liffey	353·56	Cockatrice	935·48
St. George	190·48	Weser	277·78	Marlborough	366·86		
Trafalgar	206·24	Foxhound	289·16				

IMPROPER ABSENCE.—Average Convictions, 659·68 per 1,000.

This offence has decreased, but it is still in excess of the proportion for the whole force abroad. There is, however, more leave granted than in any other foreign squadron, and taking that fact into consideration, it may be said that in its exemption from this offence the Mediterranean Squadron holds comparatively a high position.

Below the Average.				*Above the Average.*			
Hibernia	150·75	Liffey	542·68	Marlborough	676·25	Caradoc	1000·00
Wanderer	192·31	Surprise	551·28	Weser	740·74	*Medina*	1000·00
Meeanne	274·00	Magicienne	568·08	Shannon	812·92	Trafalgar	1008·14
Procris	375·00	Malacca	575·76	*Cossack*	944·44	Orlando	1077·35
Trident	389·47	St. George	582·01	Firefly	962·50	Cockatrice	1709·68
Psyche	420·00	*Queen*	585·96	Phœbe	997·97		
Chanticleer	508·98	Icarus	598·21				
Alacrity	510·64	Pelican	600·00				
Foxhound	542·17	Revenge	658·47				

MINOR OFFENCES.—Average Convictions, 1275·87 per 1,000.

These offences prevail to a great extent in the squadron. There is only one foreign squadron (Australia) in which they are exceeded. The same thing was manifested in the report for 1862, and since then the proportion has increased. There is a ship (not included in this table) that has contributed by the large number of these petty cases, reported as having occurred in a single quarter, very much more to enlarge the proportion for the whole squadron than the average of other ships in it.

Below the Average.				*Above the Average.*			
Wanderer	76·92	Trafalgar	894·17	Liffey	1292·68	Phœbe	1973·58
Psyche	220·00	Firefly	962·50	Shannon	1371·94	Trident	2105·26
Procris	250·00	Chanticleer	976·05	Meeanee	1472·95	Revenge	2163·93
Foxhound	361·45	*Medina*	1018·18	Icarus	1821·43	*Cossack*	2756·94
Cockatrice	419·35	Surprise	1076·92				
Hibernia	432·16	Marlborough	1124·52				
Weser	462·96	Magicienne	1169·01				
Caradoc	484·37	*Alacrity*	1170·21				
Orlando	762·43	Pelican	1187·10				
Queen	871·06	Malacca	1222·22				
St. George	879·63						

FLOGGED.—Average Number, 18·19 per 1,000.

This punishment has decreased. It is below the average for the forces abroad, but above the average for the whole of the Navy.

Below the Average.				*Above the Average.*			
Hibernia	00·00	*Cossack*	6·94	Orlando	18·42	Cockatrice	32·26
Medina		Magicienne	9·39	St. George	19·84	Shannon	35·63
Procris		Chanticleer	11·98	Malacca	20·20	Phœbe	36·59
Psyche		Surprise	12·82	Firefly	25·00	Meeanee	36·65
Wanderer		*Queen*	14·33	Pelican	25·81	*Alacrity*	42·55
Weser		Revenge	16·39	Liffey	26·42	Caradoc	46·87
Marlborough	5·75	Icarus	17·86	Trident	31·58	Foxhound	48·19
Trafalgar	6·78						

IMPRISONED.—Average Number, 26·50 per 1,000.

This punishment prevails in the Mediterranean to a greater extent than in any other squadron abroad, except Australia. It has increased in about the same ratio as corporal punishments have decreased.

Below the Average.				*Above the Average.*			
Caradoc	00·00	Trafalgar	18·99	*Cossack*	27·78	Magicienne	56·34
Cockatrice		Hibernia	20·10	Revenge	30·05	Icarus	71·43
Psyche		St. George	21·16	Liffey	30·49	Procris	83·05
Weser		Phœbe	24·39	Malacca	35·35	*Alacrity*	85·11
Chanticleer	5·99	Firefly	25·00	Shannon	35·63	Surprise	89·74
Meeanee	8·72	Wanderer	25·64	Orlando	40·50	Trident	94·74
Pelican	12·90	*Queen*	25·79	Foxhound	48·19	*Medina*	109·09
Marlborough	15·33						

In the Second Class for CONDUCT.—Average Number, 15·7 per Cent.

Below the Average.				*Above the Average.*			
Hibernia	2·5	Edgar	10·9	Weser	16·7	Cockatrice	22·6
Psyche	6·0	Magicienne	12·2	Phœbe	17·3	Procris	25·0
Marlborough	6·4	Meeanee	13·1	St. George	17·7	Revenge	25·8
Wanderer	6·4	Cossack	13·2	Firefly	18·7	Pelican	26·5
Hydra	6·5	Medina	14·1	Liffey	18·1	Queen	28·5
Racoon	8·5	Alacrity	14·5	Mars	19·0	Icarus	28·6
Caradoc	9·4	Orlando	15·2	Foxhound	19·3	London	Number not in the Return.
Trident	10·5	Gibraltar	15·3	Shannon	19·3		
Trafalgar	10·6	Surprise	15·4	Malacca	19·7		
Chanticleer	10·8	Firebrand	15·5				

V.—THE SQUADRON IN NORTH AMERICA AND THE WEST INDIES.

INSUBORDINATION.—Average Convictions, 245·39 per 1,000.

This squadron does not stand, comparatively, so well as it did in 1862, in the matter of subordination. Then, in the eight foreign squadrons, it was No. 2 in the order of merit; in 1863 it fell to No. 7,—not that the other squadrons had less insubordination in 1863 than they had in 1862, but that in the West India Squadron it had increased in a higher ratio than in any other abroad, except the squadron at the Cape.

Below the Average.				*Above the Average.*			
Terror	103·45	Nile	187·42	Immortalité	248·39	Shannon	329·62
Ariadne	141·55	Aboukir	208·96	Phaeton	276·85	Challenger	331·98
Medea	158·73	Galatea	225·38	*Desperate*	285·71	Virago	387·82
Rinaldo	172·12	Barracouta	230·77	Greyhound	290·91	Plover	388·89
Styx	176·05	Jason	236·36	Vesuvius	297·30	Lily	430·23
Buzzard	180·45			Rosario	298·08	Peterel	475·00
				Pylades	299·56	Nimble	508·47
				Steady	305·08	Landrail	666·66
				Cygnet	309·09		

THEFT.—Average Convictions, 12·20 per 1,000.

This crime has decreased. It is less than the proportion for the whole of the home force, and exactly the same as that for the whole force abroad.

Below the Average.				*Above the Average.*			
Desperate	00·00	Ariadne	4·57	Barracouta	12·82	Vesuvius	27·03
Immortalité		Nile	6·55	Terror	12·93	Aboukir	29·85
Nimble		Galatea	8·75	Pylades	13·22	*Buzzard*	30·08
Rinaldo		Phaeton	9·55	Styx	14·08	Greyhound	36·36
Steady		Lily	11·63	Medea	15·87	Landrail	37·04
Challenger	4·05			Jason	18·18	Plover	37·04
				Shannon	20·04	Rosario	38·46
				Virago	21·13	Cygnet	54·55
				Peterel	25·00		

DRUNKENNESS.—Average Convictions, 243·90 per 1,000.

The West India Squadron holds a good position as regards sobriety. Indeed, of all the squadrons abroad, it may be said to be the best in this respect, when the opportunities which the men have of indulging in the vice of drunkenness are compared with the same opportunities in other parts of the world.

Below the Average.				*Above the Average.*			
Lily	69·77	Nile	182·18	Virago	253·52	Landrail	370·37
Desperate	71·43	Nimble	186·44	Styx	260·56	Vesuvius	371·62
Immortalité	104·92	Terror	193·97	Aboukir	261·19	Rinaldo	390·73
Ariadne	116·14	Galatea	207·88	Barracouta	262·82	Steady	423·73
Greyhound	133·33	Pylades	224·67	Shannon	293·99	Medea	436·51
Plover	166·67	*Buzzard*	240·60	Jason	309·09	Cygnet	454·55
				Challenger	336·03	Rosario	509·62
				Phaeton	369·93	Peterel	716·67

IMPROPER ABSENCE.—Average Convictions, 813·28 per 1,000.

This offence has prevailed to a greater extent here than in any other squadron abroad. There is nothing surprising in this. A number of ships are sent every summer from the West Indies, where but little leave is given, to North America, where there is an almost unlimited amount of it. The indulgence is not only new to the men, but they receive it in places where they can enjoy it; these are certainly not reasons why they should abuse it, but they may be mentioned,—if not in extenuation, at least as a probable cause,—to account for the prevalence of the offence of leave-breaking on this particular station being in excess of the proportion of convictions for the same offence in the other squadrons abroad.

Below the Average.				*Above the Average.*			
Pylades	193·83	Immortalité	668·09	Challenger	842·11	Phaeton	1305·49
Buzzard	278·20	Cygnet	672·73	Ariadne	888·13	Vesuvius	1398·65
Rinaldo	298·01	Landrail	740·74	Plover	962·96	Aboukir	1417·91
Galatea	435·45	Lily	755·81	Jason	990·91	Nimble	1423·73
Desperate	521·43	Nile	788·99	Steady	1016·95	Virago	1683·10
Terror	620·69	Peterel	808·33	Greyhound	1224·24	Styx	2098·59
Rosario	663·46	Shannon	812·92	Barracouta	1288·46		
Medea	666·67						

Minor Offences.—Average Convictions, 1069·87 per 1,000.

These offences have increased, but they are a trifle below the proportion for the whole force abroad.

Below the Average.				*Above the Average.*			
Terror	193·97	Galatea	623·63	Ariadne	1159·82	Lily	1604·65
Immortalité	334·05	Nimble	627·12	Barracouta	1288·46	Rinaldo	1754·97
Aboukir	373·13	Phaeton	653·94	Steady	1305·08	Pylades	2039·65
Styx	478·87	Medea	666·67	Shannon	1371·94	Plover	2074·07
Cygnet	600·00	Greyhound	800·00	Virago	1373·24	Peterel	2216·67
Nile	610·75	*Desperate*	1050·00	*Buzzard*	1390·98	Challenger	2230·77
				Rosario	1423·08	Jason	2236·36
				Landrail	1555·56	Vesuvius	2824·32

Flogged.—Average Number, 18·46 per 1,000.

The proportion of this punishment has decreased since the last report. It stands below the proportion for the whole force abroad.

Below the Average.				*Above the Average.*			
Nimble	00·00	Nile	9·17	*Desperate*	21·43	Shannon	35·63
Steady		Styx	14·08	Pylades	22·03	Virago	42·25
Barracouta	6·41	Phaeton	14·32	*Buzzard*	22·56	Rinaldo	46·35
Ariadne	6·85	Aboukir	14·93	Greyhound	24·24	Plover	74·07
Challenger	8·10	Galatea	15·32	Rosario	28·84	Peterel	83·33
Immortalité	8·56	Medea	15·87	Vesuvius	33·78	Landrail	92·59
Terror	8·62	Cygnet	18·18	Lily	34·88		
Jason	9·09						

Imprisoned.—Average Number, 24·23 per 1,000.

This punishment has increased since the last report, but it is met by a corresponding decrease in corporal punishments.

Below the Average.				*Above the Average.*			
Desperate	00·00	*Buzzard*	7·53	Nile	28·88	Jason	45·45
Medea		Galatea	10·95	Peterel	30·30	Greyhound	48·48
Rinaldo		Lily	11·63	Phæton	33·41	Cygnet	54·55
Rosario		Barracouta	12·82	Vesuvius	33·78	Terror	56·03
Styx		Immortalité	12·85	Nimble	33·90	Virago	56·34
Challenger	4·05	Steady	16·95	Shannon	35·63	Landrail	111·11
Pylades	4·41	Ariadne	22·83	Aboukir	44·78	Plover	129·63

In the Second Class for Conduct.—Average Number, 12·8 per Cent.

Below the Average.				*Above the Average.*			
Medea	4·0	Aboukir	11·2	Orlando	13·1	Cadmus	16·4
Greyhound	6·7	Terror	11·2	Rosario	13·5	Cygnet	18·2
Barracouta	9·0	Desperate	11·4	Vesuvius	13·5	Shannon	18·3
Jason	9·1	Styx	12·0	Steady	13·6	Virago	18·9
Nile	9·6	Challenger	12·1	Spiteful	14·4	Peterel	20·8
Buzzard	9·9	Galatea	12·5	Immortalité	14·8	Plover	33·3
Phaeton	10·0	Rinaldo	12·6	Nimble	15·3	Landrail	38·9
Pylades	10·1	Melpomene	12·7	Ariadne	16·0		
Lily	10·5						

VI.—THE SQUADRON IN THE EAST INDIES AND CHINA.

INSUBORDINATION.—Average Convictions, 229·68 per 1,000.

In estimating the state of the China Squadron by the information contained in these tables, it will be borne in mind that it consisted of 46 vessels, most of which were of the smallest class in the Navy; that they were principally employed in rivers, a service of all others the most trying to the maintenance of discipline; and that, on the whole, the squadron had less actual sea-work than any other squadron abroad. Making all these allowances, however, the proportion of convictions on account of insubordination and drunkenness is high.

Below the Average.				*Above the Average.*			
Princess Charlotte	32·41	Flamer	156·25	Scout	230·05	Leven	384·62
Slaney	52·63	*Osprey*	160·00	Clown	235·29	*Odin*	396·94
Argus	71·43	Insolent	162·16	Severn	241·07	Hesper	406·78
Manilla	73·07	Centaur	170·89	Racehorse	247·06	*Vigilant*	450·70
Sphinx	82·35	Pearl	171·29	Algerine	250·00	Kestrel	457·14
Hardy	96·77	Encounter	179·01	Cockchafer	250·00	Coromandel	459·46
Rifleman	98·59	Weasel	185·19	Perseus	255·03	*Pantaloon*	528·85
Bustard	111·11	Euryalus	192·31	Staunch	272·73	Grasshopper	529·41
Vulcan	126·76	Barrosa	196·58	Hornet	300·70	Cormorant	539·47
Coquette	129·87	Leopard	214·05	Bouncer	303·03	Havoc	593·75
Swallow	153·85			Rattler	349·65	Janus	617·65
				Renard	361·11	Ringdove	657·14
				Haughty	378·38		

THEFT.—Average Convictions, 12·29 per 1,000.

There has been a considerable diminution of this crime since the former report.

Below the Average.				*Above the Average.*			
Bustard	00·00	Rattler	00·00	Coquette	12·99	Insolent	27·03
Centaur		*Renard*		*Osprey*	13·33	Algerine	27·78
Clown		Ringdove		Rifleman	14·08	Kestrel	28·57
Cockchafer		Scout		*Vigilant*	14·08	*Pantaloon*	28·85
Coromandel		Slaney		Euryalus	15·38	*Odin*	28·90
Cormorant		*Sphinx*		Hornet	20·98	Beagle	30·30
Grasshopper		Swallow		Vulcan	21·13	Flamer	31·25
Hardy		Weazel		Barrosa	21·37	Perseus	46·98
Haughty		Severn	4·46	Leopard	23·41	Manilla	48·78
Havoc		Princess Charlotte	4·63	Leven	25·64	Staunch	60·61
Hesper		Encounter	6·17				
Janus		Argus	7·14				
Pearl		Racehorse	11·76				

DRUNKENNESS.—Average Convictions, 299·24 per 1,000.

Except in the South-east Coast of America Division there appears to be more drunkenness in this than in any other. The remarks under the head of "insubordination" apply with equal force to this offence.

Below the Average.				*Above the Average.*			
Insolent	81·08	Hornet	216·78	Swallow	320 57	Manilla	536·59
Severn	98·21	Bustard	222·22	Racehorse	341·18	Centaur	544·30
Scout	112·68	Weazel	222·22	Coquette	350·65	Clown	588·24
Leopard	117·06	*Osprey*	240·00	Cormorant	381·58	Rattler	601·40
Slaney	131·58	Coromandel	243·24	Flamer	406·25	Leven	641·03
Encounter	160·49	*Sphinx*	247·06	*Pantaloon*	432·75	Havoc	656·25
Hardy	161·29	*Odin*	254·34	Cockchafer	437·50	Kestrel	657·14
Princess Charlotte	171·30	Euryalus	265·38	Barrosa	440·17	Haughty	675·68
Pearl	199·07	Rifleman	281·69	*Vigilant*	450·70	Vulcan	676·06
Ringdove	214·29	Argus	292·86	Hesper	457·63	Bouncer	696·97
				Perseus	469·80	Grasshopper	823·53
				Algerine	500·00	Janus	1235·29
				Staunch	515·15		
				Renard	527·78		

IMPROPER ABSENCE.—Average Convictions, 620·60 per 1,000.

The proportion of convictions on account of improper absences in this division is the same as for the whole force abroad.

Below the Average				*Above the Average.*			
Leopard	46·82	Severn	415·18	Weazel	629·63	Perseus	838·92
Rattler	69·92	Bustard	416·67	Euryalus	630·77	Havoc	875·00
Slaney	78·95	Pearl	425·93	Barrosa	645·30	Coromandel	891·89
Insolent	162·16	Coquette	545·45	Vulcan	676·06	Centaur	911·39
Sphinx	176·47	Cormorant	565·78	*Pantaloon*	692·31	Bouncer	969·70
Rifleman	225·35	Argus	571·43	Haughty	702·70	Staunch	969·70
Swallow	243·59	Algerine	583·33	Encounter	740·74	Grasshopper	1058·82
Renard	277·78	Hornet	587·41	Ringdove	757·14	Hesper	1101·69
Princess Charlotte	375·00	Racehorse	600·00	*Osprey*	760·00	Janus	1146·06
Hardy	387·10	Clown	617·65	*Odin*	763·01	Cockchafer	1468·75
				Vigilant	788·73	Flamer	1718·75
				Kestrel	828·57	Scout	1807·51
				Manilla	829·27	Leven	1897·44

MINOR OFFENCES.—Average Convictions, 1212·85 per 1,000.

These offences have increased since the former report. The proportion now is about the same as in the squadrons in the Mediterranean and on the West Coast of Africa.

Below the Average.				*Above the Average.*			
Princess Charlotte	111·11	Hesper	525·42	Hornet	1223·78	Racehorse	1682·35
Rifleman	112·68	Haughty	540·54	Coquette	1259·75	Scout	1765·26
Slaney	157·89	Encounter	555·56	Perseus	1261·74	*Pantaloon*	1836·54
Hardy	161·29	Algerine	638·89	Leven	1358·97	Leopard	1933·11
Argus	171·43	Pearl	657·41	Janus	1411·76	Cormorant	2000·00
Swallow	205·13	Grasshopper	676·47	Rattler	1461·54	Havoc	2343·75
Insolent	216·22	Cockchafer	687·50	Flamer	1531·25	*Osprey*	2400·00
Clown	235·29	Coromandel	756·76	Staunch	1575·76	Ringdove	2771·43
Bustard	250·00	Manilla	780·49	Kestrel	1600·00	*Vigilant*	2915·49
Weazel	370·37	*Odin*	919·08	Euryalus	1636·54	Barossa	3132·48
Vulcan	373·24	Bouncer	969·70				
Sphinx	494·12	*Renard*	1055·56				
Centaur	512·66	Severn	1156·25				

FLOGGED.—Average Number, 23·25 per 1,000.

The proportion of corporal punishments continues high in this division, but it has fallen since 1862.

Below the Average.				*Above the Average.*			
Argus	00·00	Slaney	00·00	Encounter	24·69	*Pantaloon*	38·46
Bustard		*Sphinx*		Euryalus	25·00	Cormorant	39·47
Clown		Staunch		Leven	25·64	Perseus	40·27
Flamer		Weazel		Coquette	25·97	Rifleman	42·25
Hardy		Leopard	6·69	Algerine	27·78	*Odin*	52·02
Haughty		Vulcan	7·04	Grasshopper	29·41	*Osprey*	53·33
Insolent		Pearl	9·26	Janus	29·41	Coromandel	54·06
Princess Charlotte		Severn	11·16	Bouncer	30·30	*Vigilant*	56·34
Rattler		Swallow	12·82	Cockchafer	31·25	Kestrel	57·14
Renard		Hornet	13·99	Hesper	33·90	Manilla	73·17
		Scout	14·05	Barrosa	34·19	Havoc	187·50
				Racehorse	35·29	Ringdove	200·00
				Centaur	37·97		

IMPRISONED.—Average Number, 23·25 per 1,000.

The proportion of this punishment has increased since 1862, but not to the same extent as corporal punishments have decreased.

Below the Average.				*Above the Average.*			
Argus	00·00	Leopard	3·34	Racehorse	23·53	Perseus	53·69
Bustard		*Odin*	5·78	Slaney	26·32	Ringdove	57·14
Centaur		Encounter	6·17	Coromandel	27·03	Grasshopper	58·82
Cockchafer		Rattler	6·99	Algerine	27·78	Coquette	77·92
Insolent		Scout	9·38	Kestrel	28·57	Haughty	81·08
Pearl		*Osprey*	13·33	Bouncer	30·30	Rifleman	84·51
Renard		Euryalus	13·46	Hardy	32·26	Flamer	93·75
Sphinx		Barrosa	17·09	Hornet	34·97	Havoc	93·75
Staunch		*Pantaloon*	19·23	Vulcan	35·21	*Vigilant*	98·59
Swallow		Severn	22·32	Princess Charlotte	37·04	Manilla	121·95
Weazel				Hesper	50·85	Clown	147·06
				Leven	51·28	Janus	176·47
				Cormorant	52·63		

In the Second Class for CONDUCT.—Average Number, 14·3 per Cent.

Below the Average.				*Above the Average.*			
Sans Pareil	2·3	Beagle	10·7	Rattler	14·7	Hesper	20·3
Hardy	6·5	Bustard	11·1	Euryalus	14·8	Janus	20·6
Leopard	6·7	Renard	11·1	Weazel	14·8	Coromandel	21·6
Vulcan	7·0	Swallow	11·5	Barrosa	15·4	Haughty	21·6
Ringdove	7·1	Encounter	11·7	Perseus	15·4	Cockchafer	21·9
Vigilant	7·2	Grasshopper	11·8	Rifleman	15·5	Flamer	21·9
Sphinx	7·3	Osprey	12·0	Impérieuse	16·6	Leven	23·1
Princess Charlotte	7·4	Scout	12·2	Argus	17·1	Havoc	25·0
Insolent	8·1	Centaur	13·9	Cormorant	17·1	Pearl	25·5
Severn	9·4	Scylla	14·0	Pantaloon	17·6	Clown	26·5
Coquette	10·4			Tartar	17·7	Manilla	31·7
				Bouncer	18·2	Odin	35·7
				Staunch	18·2	Algerine	38·9
				Racehorse	18·8	Snake (numbers not in returns).	
				Hornet	18·9		
				Kestrel	20·0		

VII.—THE CAPE OF GOOD HOPE DIVISION.

Insubordination.—Average Convictions, 210·41 per 1,000.

The Cape Division has no longer the honour of holding the first position among the foreign squadrons as regards subordination. From No. 1 it has fallen to No. 4, in other words, from being the best of all it has dropped down into mediocrity. It would be a waste of time to speculate on the causes that may have led to this retrograde movement; they may, however, be understood by the commanding officers of the squadron now that the fact is brought to their notice; and assuredly nothing will be wanting on their parts, or on the part of their subordinates, to secure for the Cape Squadron in future reports the pre-eminent place it occupied in 1862.

Below the Average.				*Above the Average.*			
Seringapatam	48·78	Narcissus	170·00	Orestes	213·33	Ariel	287·67
				Rapid	252·34	Penguin	288·14
				Valorous	257·58	Gorgon	335·44

Theft.—Average Convictions, 7·43 per 1,000.

There are fewer convictions here for this crime than in any other division abroad or at home; and not only so, but there is a marked diminution in the proportion for 1863 as compared with 1862.

Below the Average.				*Above the Average.*			
Ariel Orestes Seringapatam	00·00	Gorgon	6·33	*Valorous*	7·58	Penguin	16·95
				Narcissus	8·00	Rapid	28·04

Drunkenness.—Average Convictions, 205·95 per 1,000.

Except the West Coast of Africa, there is less drunkenness in this division than in any other abroad. The proportion is the same as for the whole Navy abroad and at home.

Below the Average.				*Above the Average.*			
Rapid	121·50	Seringapatam	154·47	Gorgon	272·15	Ariel	424·66
Narcissus	122·00	Orestes	168·89	*Valorous*	386·36	Penguin	576·27

Improper Absence.—Average Convictions, 401·49 per 1000.

There is less improper absence in this division than in any other, except the West Coast of Africa. This arises, probably, from the few opportunities of giving leave, the larger number of the ships being employed cruizing in the suppression of slave trade in the Mozambique.

Below the Average.				*Above the Average.*			
Narcissus	72·00	Rapid	289·72	Seringapatam	577·24	*Valorous*	856·06
Ariel	136·99			Penguin	661·01	Gorgon	873·42
				Orestes	675·56		

Minor Offences.—Average Convictions, 944·24 per 1,000.

The division holds a very fair position in respect to these offences. It stands No. 3 in the eight foreign squadrons.

Below the Average.				*Above the Average.*			
Seringapatam	113·82	Narcissus	734·00	Ariel	1191·78	Gorgon	1962·03
Rapid	495·33	Orestes	880·00	Penguin	1338·98	*Valorous*	2007·57

Flogged.—Average Number, 17·84 per 1,000.

Notwithstanding the increase of convictions for insubordination, this punishment has slightly decreased since the former report.

Below the Average.				*Above the Average.*			
Orestes	4·44	Ariel	13·70	Gorgon	18·99	Penguin	84·75
Rapid	9·35	*Valorous*	15·15	Serisgapatam	40·65		
Narcissus	12·00						

Imprisoned.—Average Number, 25·28 per 1,000.

This punishment has increased, but not beyond the proportion for the whole Navy abroad.

Below the Average.				*Above the Average.*			
Orestes	00·00	Gorgon	12·66	Narcissus	36·00	*Valorous*	60·61
Penguin		Seringapatam	16·26	Ariel	54·79		
Rapid							

In the Second Class for Conduct.—Average Number, 12·2 per Cent.

Below the Average.				*Above the Average.*			
Seringapatam	4·9	Gorgon	7·6	*Valorous*	16·2	Penguin	25·4
Orestes	5·3	Narcissus	11·8	Rapid	19·6	Ariel	26·0

VIII.—WEST COAST OF AFRICA DIVISION.

Insubordination.—Average Convictions, 208·21 per 1,000.

As regards subordination, the West Coast of Africa is only excelled by two out of the remaining seven foreign squadrons. It has maintained its former position better than any other squadron except the Mediterranean.

Below the Average.				*Above the Average.*			
Mæander	80·17	Zebra	147·89	*Wrangler*	209·31	*Jaseur*	276·60
Griffon	127·27	*Brisk*	203·39	Antelope	215·13	*Archer*	291·34
Rattlesnake	132·48	*Pandora*	204·08	*Ranger*	250·00	*Bloodhound*	333·33
				Sparrow	250·00	Dart	333·33
				Dromedary	270·83	Investigator	375·00
				Philomel	274·19	Espoir	392·86
				Torch	275·86	Mullet	520·00

Theft.—Average Convictions, 11·73 per 1,000.

The proportion of convictions for this crime has increased since the last report, but it is below the average of other squadrons.

Below the Average.				*Above the Average.*			
Antelope	00·00	Mæander	00·00	Philomel	16·13	*Wrangler*	23·26
Dart		Mullet		Torch	17·24	*Archer*	23·62
Dromedary		*Pandora*		Espoir	17·86	Rattlesnake	34·19
Griffon		*Ranger*		*Sparrow*	22·73	*Bloodhound*	66·67
Investigator		Zebra	7·04				
Jaseur		*Brisk*	8·47				

Drunkenness.—Average Convictions, 159·52 per 1,000.

There is far less drunkenness in this than in any other foreign squadron. The proportion is within a fraction the same as it was in 1862.

Below the Average.				*Above the Average.*			
Ranger	41·67	Antelope	115·38	Mullet	160·00	Rattlesnake	222·22
Mæander	46·41	*Jaseur*	127·66	*Pandora*	163·00	Investigator	250·00
Griffon	54·55	Dart	133·33	Torch	189·66	*Sparrow*	295·45
Dromedary	104·17	*Wrangler*	139·53	Zebra	204·23	Espoir	321·43
Archer	110·24	*Brisk*	144·07	Philomel	209·00	*Bloodhound*	366·67

Absent without or over Leave.

On this station there is so little opportunity of granting leave to the Ships' Companies that it is not considered necessary to draw any comparison, as regards *"leave breaking,"* between the different ships.

Minor Offences.—Average Convictions, 1238·12 per 1,000.

The minor offences are high, in proportion, in this division.

Below the Average.				*Above the Average.*			
Griffon	72·73	Antelope	423·08	Zebra	1359·15	Espoir	1607·14
Mæander	156·12	*Brisk*	745·76	Torch	1362·07	*Pandora*	1877·55
Dromedary	312·50	Rattlesnake	863·25	*Bloodhound*	1366·67	Dart	2300·00
Investigator	416·67	Philomel	870·97	*Wrangler*	1441·86	Mullet	2760·00
				Sparrow	1590·91	*Jaseur*	3085·11
				Ranger	1604·17	*Archer*	3787·40

FLOGGED.—Average Number, 25·22 per 1,000.

This is the only division abroad in which there has been an increase in the proportion of corporal punishments. In this respect, next to Australia, the West Coast of Africa holds the worst position.

Below the Average.				*Above the Average.*			
Brisk	00·00	Zebra	14·08	*Archer*	31·50	*Sparrow*	45·46
Dromedary		Rattlesnake	17·09	*Bloodhound*	33·33	Philomel	48·39
Griffon		Mullet	20·00	Espoir	35·72	Torch	51·72
Mæander		*Pandora*	20·41	Antelope	38·46	Dart	116·67
Ranger				Investigator	41·67	*Jaseur*	127·66
Wrangler							

IMPRISONED.—Average Number, 24·63 per 1,000.

There has been a larger increase in the proportion of imprisonments in this division than in any other.

Below the Average.				*Above the Average.*			
Antelope	00·00	*Brisk*	8·47	Zebra	28·16	*Wrangler*	93·02
Archer		Mæander	12·66	Espoir	35·72	Dart	100·00
Bloodhound		Dromedary	20·00	Rattlesnake	38·46	Philomel	129·03
Griffon		*Ranger*	20·83				
Investigator		*Sparrow*	22·73				
Jaseur							
Mullet							
Pandora							
Torch							

It may be assumed that none of the Europeans of this squadron were committed to the prisons at the British Settlements on the coast of Africa, as, for obvious reasons, there is an order to the contrary.

In the Second Class for CONDUCT.—Average Number, 12·6 per Cent.

Below the Average.				*Above the Average.*			
Griffon	5·5	Vindictive	8·5	Jaseur	14·1	Espoir	21·4
Snipe	5·6	Zebra	9·2	Bloodhound	14·3	Wrangler	21.7
Archer	7·1	Mullet	10·0	Brisk	17·4	Antelope	23·1
Mæander	7·2	Pandora	10·2	Ranger	17·9	Philomel	30·6
Rattlesnake	7·3	Wye	11·8	Torch	20·7	Dart	31·7
Dromedary	8·3	Sparrow	12·5				
Investigator	8·3						

IX.—THE SQUADRON IN THE PACIFIC.

INSUBORDINATION—Average Convictions, 184·08 per 1,000.

The position held by this squadron in respect to subordination is highly to its credit. It stands next to the Mediterranean Squadron, that is, second among the foreign squadrons.

Below the Average.				*Above the Average.*			
Naiad	00·00	Sutlej	88·79	*Shearwater*	185·19	Bacchante	266·38
Nereus		*Leander*	119·44	Tribune	208·83	*Clio*	269·4
Forward	37·04	Devastation	140·73	Mutine	222·97	*Tartar*	291·86
Charybdis	79·44	Topaze	175·13	Camelcon	228·35	Grappler	406·255
				Hecate	234·69		

THEFT.—Average Convictions, 16·79 per 1,000.

The proportion of convictions for this crime has more than doubled since the former report; and, with the exception of Australia, it stands higher in this than in any other squadron. In the former report it stood No. 1, now it is No. 10.

Below the Average.				*Above the Average.*			
Forward	00·00	*Tartar*	4·29	Sutlej	16·91	*Leander*	27·78
Grappler		Mutine	6·76	*Shearwater*	18·52	Devastation	31·25
Hecate		Bacchante	10·57	Tribune	20·83	Cameleon	102·36
Naiad		*Clio*	11·98				
Nereus		Charybdis	14·02				
Topaze	2·54						

DRUNKENNESS.—Average Convictions, 233·95 per 1,000.

The position held by this squadron with regard to sobriety is very creditable. After the African Squadrons, it is the best of those abroad in this respect; all the other squadrons, however, in which drunkenness was exceeded, were a shorter time at sea.

Below the Average.				*Above the Average.*			
Hecate	40·82	*Clio*	167·66	Tribune	237·50	Bacchante	317·12
Sutlej	124·73	Charybdis	172·89	*Tartar*	253·22	Cameleon	354·33
Devastation	132·81	Naiad	200·00	*Leander*	255·55	Grappler	625·00
Forward	148·15	Mutine	222·97	Topaze	279·19		
Shearwater	157·41	Nereus	228·57				

IMPROPER ABSENCE.—Average Convictions, 511·16 per 1,000.

The convictions on account of this offence are below the average of all the other squadrons at home and abroad, except those in Africa.

Below the Average.				*Above the Average.*			
Naiad	200·00	Cameleon	299·21	Charybdis	541·02	Grappler	812·50
Hecate	204·08	*Tartar*	300·43	*Leander*	652·78	Topaze	829·95
Forward	222·22	Sutlej	405·92	Tribune	695·83	Nereus	1000·00
Bacchante	232·56	Mutine	459·46	Devastation	734·38	*Shearwater*	1138·89
				Clio	778·44		

MINOR OFFENCES.—Average Convictions, 852·15 per 1,000.

The proportion of minor offences is lower in this than in any other squadron abroad; and it is remarkable as the only squadron in which they have diminished.

Below the Average.				*Above the Average.*			
Nereus	00·00	Cameleon	377·95	*Leander*	886·11	Charybdis	1098·13
Grappler	62·50	*Shearwater*	435·18	Mutine	898·65	*Clio*	1443·11
Forward	111·11	Topaze	500·00	Sutlej	953·49	Tribune	2520·83
Naiad	200·00	Bacchante	598·31				
Hecate	204·08	Devastation	703·12				
Tartar	291·85						

FLOGGED.—Average Number, 18·44 per 1,000.

Corporal punishments have materially decreased in this squadron since the last report, and this decrease has not been met by any appreciable increase in the number of imprisonments.

Below the Average.				*Above the Average.*			
Forward	00·00	*Shearwater*	9·26	Charybdis	18·69	Grappler	31·25
Hecate		Topaze	10·15	Bacchante	21·01	*Clio*	35·93
Naiad		Mutine	13·51	Devastation	31·25	Cameleon	102·36
Nereus		Tribune	16·67				
Leander	5·56	*Tartar*	17·17				
Sutlej	6·34						

IMPRISONED.—Average Number, 12·29 per 1,000.

The proportion of persons subjected to this punishment remains nearly the same as it was in 1862. It is below that in any other squadron abroad or at home; and taken in connection with the small amount of corporal punishment, it shows the squadron to be peculiarly exempt from the more serious class of offences.

Below the Average.				*Above the Average.*			
Bacchante	00·00	Nereus	00·00	Forward	37·04	Cameleon	94·49
Charybdis		*Shearwater*		Topaze	48·22	Naiad	133·33
Clio		*Tartar*		Grappler	62·50		
Hecate		Tribune					
Leander		Sutlej	2·11				
Mutine		Devastation	7·81				

In the Second Class for CONDUCT.—Average Number, 13·5 per Cent.

Below the Average.				*Above the Average.*			
Naiad	0·0	Cameleon	8·7	Tartar	15·6	Tribune	18·7
Hecate	4·1	Forward	11·1	Devastation	17·2	Charybdis	20·6
Shearwater	7·4	Mutine	11·5	Bacchante	18·4	Topaze	20·8
Sutlej	7·4	Grappler	12·5				
Leander	7·9	Clio	13·4				
Nereus	8·6						

X.—THE SQUADRON ON THE SOUTH-EAST COAST OF AMERICA.

INSUBORDINATION.—Average Convictions, 218·52 per 1,000.

THE convictions on account of insubordination in this division are above the average for the whole of the foreign force. There can be no question that this is one of the most difficult stations whereon to maintain "good order" among the crews. The ships are a good deal at anchor in the River Plate, but although they lay a long distance from the shore there is constant communication by boats. There are extraordinary inducements for the men to desert, for the country is healthy, wages are high, food is abundant and cheap, the occupations are easy, labour everywhere in demand, and the chances of apprehension, when once outside the towns, very small indeed. Idleness and monotony,—from uncontrollable circumstances,—prevail in this squadron more than in any other abroad; they are two of the surest causes of crime, and therefore in estimating the comparative merit attached to the force, due regard must be had to the peculiar character of the service in which the greater portion of it is employed.

Below the Average.				*Above the Average.*			
Curlew	98·77	Doterel	193·55	Stromboli	220·59	*Triton*	333·33
Forte	168·23	*Alecto*	197·80	*Ardent*	237·29	*Egmont*	364·29
Satellite	169·72			Sheldrake	300·00	Spider	400·00

THEFT.—Average Convictions, 13·81 per 1,000.

There is very little difference in the proportion of convictions for this crime since the former report. Now, as before, it is above that for the Navy in general.

Below the Average.				*Above the Average.*			
Curlew	00·00	Satellite	4·59	*Triton*	16·67	*Alecto*	21·98
Doterel		*Egmont*	7·14	*Ardent*	16·95	Forte	25·70
Sheldrake		Stromboli	7·35				
Spider							

DRUNKENNESS.—Average Convictions, 304·63 per 1,000.

The proportion of convictions on account of drunkenness is higher in this than in any other squadron.

Below the Average.				*Above the Average.*			
Curlew	160·49	*Egmont*	278·57	Doterel	322·58	Sheldrake	533·33
Satellite	192·66	*Ardent*	288·14	*Alecto*	340·66	*Triton*	550·00
Forte	210·28			Stromboli	455·89	Spider	733·33

IMPROPER ABSENCE.—Average Convictions, 727·86 per 1,000.

Next to the West Indies, this is the worst of the foreign squadrons as regards improper absences.

Below the Average.				*Above the Average.*			
Curlew	222·22	*Egmont*	707·14	Satellite	862·39	Sheldrake	1033·33
Doterel	483·87	*Alecto*	714·28	Forte	950·93	*Ardent* (not stated).	
Stromboli	580·89	*Triton*	716·67				
Spider	600·00						

MINOR OFFENCES.—Average Convictions, 913·89 per 1,000.

These offences are far below the average of other squadrons. There is only one foreign squadron, in fact, in which the proportion is lower, namely, the squadron in the Pacific.

Below the Average.				*Above the Average.*			
Doterel	225·81	Spider	700·00	Curlew	839·51	*Ardent*	1644·07
Triton	616·67	Stromboli	713·24	Satellite	954·13	*Egmont*	2178·57
Sheldrake	700·00	Forte	801·40	*Alecto*	1428·57		

FLOGGED.—Average Number, 14·62 per 1,000.

There is less corporal punishment in this division than in any other abroad, although there is little or no opportunity of awarding imprisonment in lieu of it. Altogether the punishments in the division are particularly light.

Below the Average.				*Above the Average*			
Curlew	00·00	Triton	00·00	*Ardent*	16·95	Stromboli	22·06
Doterel		Forte	9·35	*Alecto*	21·98	Sheldrake	33·33
Satellite		*Egmont*	14·29				
Spider							

IMPRISONED.—Average Number, 13·00 per 1,000.

This punishment cannot often be awarded in this squadron except by court martial, for there are no prisons to which offenders could summarily be committed except at the Falkland Islands, and there is very little communication with them. To make up for this want, confinement in cells on board is resorted to a good deal in two or three of the ships. Perhaps in most instances it answers the purpose equally well as a prolonged imprisonment in the generally ill-managed gaols of the smaller colonies.

Below the Average.				*Above the Average.*			
Ardent	00·00	Sheldrake	00·00	*Egmont*	14·29	*Alecto*	21·98
Curlew		Spide		*Triton*	16·67	Stromboli	44·12
Doterel		Forter	7·01				
Satellite							

In the Second Class for CONDUCT.—Average Number, 16·4 per Cent.

Below the Average.				*Above the Average.*			
Satellite	5·5	Egmont	9·3	Spider	16·7	Sheldrake	20·0
Triton	7·9	Doterel	9·7	Curlew	18·5	Forte	22·7
Ardent	9·1	Alecto	11·9	Stromboli	19·1	Madagascar	31·8

XI.—THE SQUADRON IN AUSTRALIA.

Insubordination.—Average Convictions, 260·00 per 1,000.

This division has the misfortune of standing lowest in the order of merit as regards desertion, insubordination, theft, minor offences, corporal punishments, and imprisonments. The returns do not specify how long the ships were at sea during the year; but, as the squadron was chiefly employed in New Zealand, co-operating with the army, it may be assumed that there was a good deal of harbour and shore service, and very little cruizing. There is no reason whatever to suppose that the crews of the Australian ships are a better or worse disposed set of men than the crews of ships on other stations; nor is it at all probable that the officers are less zealous and efficient than the officers elsewhere; in fact, there are ample proofs to repel either of these suppositions, if they were needed; but the comparatively bad position held by the squadron must be attributed to local causes producing temptations, and offering opportunities for crimes and petty offences, which none can thoroughly understand except the officers on the spot, and to which, possibly, no other squadron has been exposed in the same degree.

Below the Average.				*Above the Average.*			
Curaçoa	135·75	Harrier	204·38	*Esk*	348·49	*Pioneer*	403·23
Eclipse	197·37	Miranda	226·19				

Theft.—Average Convictions, 17·33 per 1,000.

Below the Average.				*Above the Average.*			
Curaçoa	9·05	*Pioneer*	16·13	Harrier	21·90	Eclipse	26·32
Esk	15·15			Miranda	23·81		

Drunkenness.—Average Convictions, 276·00 per 1,000.

All things considered, this squadron does not hold a bad position with regard to sobriety. The proportion of convictions for the offence is only slightly above that of the whole force abroad.

Below the Average.				*Above the Average.*			
Curaçoa	108·60	*Pioneer*	258·06	Miranda	392·86	Harrier	401·46
Esk	242·42	Eclipse	263·16				

Improper Absence.—Average Convictions, 540·00 per 1,000.

The position of the squadron in respect to this offence is very creditable to it. The proportion of absentees is far below the general averages.

Below the Average.		*Above the Average.*			
Eclipse	434·21	Miranda	583·33	*Pioneer*	1225·81
		Curaçoa	610·86	*Esk*	1371·21
		Harrier	693·43		

Minor Offences.—Average Convictions, 1696·00 per 1000.

Below the Average.				*Above the Average.*			
Miranda	565·48	Eclipse	1381·58	*Curaçoa*	1990·95	*Esk*	3250·00
Harrier	905·11			*Pioneer*	2080·65		

Flogged.—Average Number, 29·33 per 1,000.

The proportion of corporal punishments is only a little more than half what it was in the former report, still it is beyond that of other squadrons, and nearly double the proportion for the whole of the Navy.

Below the Average.				*Above the Average.*			
Eclipse	00·00	*Esk*	22·73	*Pioneer*	32·26	Harrier	58·39
Curaçoa	13·57			Miranda	35·71		

Imprisoned.—Average Number, 112·00 per 1,000.

The imprisonments in this squadron have nearly doubled since the last report. They are, in proportion, more than four times in excess of any other squadron abroad; and although this large increase is in some measure compensated for by the decrease of corporal punishments, the two punishments together are so much beyond what they are in other portions of the Navy, that the Australian squadron, on the whole, must, so far as exemption from crime is concerned, be considered as one of the least creditable in 1863.

Below the Average.				*Above the Average.*			
Esk	22·73	*Curaçoa*	40·72	Miranda	142·86	*Pioneer*	306·45
Eclipse	39·47			Harrier	152·28		

In the Second Class for Conduct.—Average Number, 15·3 per Cent.

Below the Average.				*Above the Average.*			
Curaçoa	6·8	Fawn	12·9	Harrier	20·4	Pioneer	33·7
Eclipse	7·9	Esk	15·0	Miranda	23·8		

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8. In the tables of offences in each ship an attempt has been made to give the number of desertions; but, in consequence of very many of the returns being defective in this particular, I am obliged, as in my former report, to rely for information, as to the *aggregate* numbers, on information contained in a return furnished to their Lordships by the Accountant General of the Navy. The ship returns are, no doubt, correct so far as the deserters who are apprehended and punished are concerned, and these will be found inserted in the tables under the head of "Offences of the Second Degree"; but in most cases the commanding officers fail to fill up the columns in the first page of their quarterly punishment reports, in which the *total* number of men and boys marked "Run," during the quarter should be inserted. From the Accountant General's return it would appear that, in 1863, 1,570 men and boys deserted from the Navy. Of this number it is known that 531 were either apprehended or voluntarily returned to the service; therefore, during the year, the actual loss was only 1,039, or 2·10 per cent.; as low an average probably as any naval force in the world could show. The total number marked "*Run*" in the same period represents 3·17 per cent., against 3·43 per cent. in the year preceding. In the four years from 1854 to 1857, the men and boys marked "Run" represented, annually, nearly 6 per cent. of the total mean force. In face of the increased demand for seamen to meet the requirements of the maritime trade of the country which has gone on expanding and expanding for the last 10 years especially; the prosperous condition of the colonies at the antipodes, where men, with the sanguine dispositions of seamen, believe that every able-bodied man can dig a fortune out of the earth in a week or two; and remembering also that extraordinary temptations have lately presented themselves for skilled men-of-war's men to offer their services to a foreign navy actively engaged in war, this diminution in the proportion of desertions stands out as a striking and convincing testimony of the improved condition and present contentment of the men.

The proportion of men and boys marked "*Run*" in the several divisions of the fleet is as follows:

Australia	10·27	per cent.
South-East Coast of America	9·42	„
Channel	4·97	„
Pacific	4·76	„
Coast Guard Ships	3·82	„
North America and West Indies	3·76	„
East Indies and China	3·50	„
"Home"	2·88	„
Cape of Good Hope	0·81	„
West Coast of Africa	0·70	„
Mediterranean	0·66	„

9. I should like, if I had time, to make a distinction in future reports between the very trifling and more serious cases of "Insubordination." Throughout these tables there are included, under that general heading, all offences evincing even the remotest disregard of superior authority. These, of course, form the larger proportion of the cases; but, including them, the convictions for the year are less than 16 per cent., a proportion which, on the whole, must be considered highly satisfactory. The same remarks apply to "theft," for, under that term, are included petty acts of pilfering, such as would scarcely be taken notice of in a police court. "Drunkenness" includes the offence of smuggling liquor on board, and that probably represents 5 per cent. of the cases.

10. The proportion of convictions on account of improper absence is startling at first sight, but in reality it is not large when the amount of leave given is considered. It does not go to the extent of each man and boy in the service breaking his leave once a-year. Taking the whole of the *home* force at 21,682, and allowing that each person goes on shore only once a week (a very moderate computation), there would be 1,127,464 occasions or turns of leave during the year, and the cases of improper absence on that number being 24,575, would be at the rate of 2·18 per cent.

11. The convictions on account of "Minor Offences" have increased, or rather more have been recorded in the returns for the year embraced in this report than in the year preceding. These offences, such as they are, are just those over which individual officers (especially those in charge of decks or boats) have a suppressing power. Commodore Wilmot, in one of the returns of the "Rattlesnake" for 1863, says, "I have remarked to the commander on the increase of minor punishments, and suggested a greater amount of supervision amongst officers and others appointed to superintend and control the men. *I am quite certain that one-half of the minor punishments need never have been inflicted, if*

a proper vigilance had been exercised by the officers." The officers must have cheerfully and cordially responded to the call made upon them by the commodore, for it will be seen, by referring to the returns, that the minor offences in the ship fell from 88 in *three* months to 67 in the following *six* months.

12. There are five or six cases recorded of cutting and wounding, or stabbing, but in no one instance is the "intent" specified; judging, however, from the leniency of the punishments awarded for these offences, they could not have been of a serious description.

13. Wherever the degree of crime depends, in a measure, on the intent with which it was committed, the intent should be specified in the warrant or report.

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14. The number of men and boys tried by court-martial in 1863 was 146, and of that number 140 were convicted and punished; the remaining six were acquitted.

The following table shows the number tried and convicted, or acquitted in each class or grade:

Petty Officers	Tried	12
	Convicted	11
	Acquitted	1
Seamen &c.	Tried	85
	Convicted	84
	Acquitted	1
Boys	Tried	10
	Convicted	10
Non-commissioned Officers of Marines	None.	
Private Marines	Tried	39
	Convicted	35
	Acquitted	4

Of the offenders convicted, 17 were in the "Home" squadron, 18 in the Channel, nine in the Coast Guard, 19 in the Mediterranean, 17 in North America and West Indies, 31 in the East Indies and China, one in the Cape of Good Hope, five in the West Coast of Africa, 15 in the Pacific, two in the South-East Coast of America, and six in the Australian squadron.

The proportion of convictions by court-martial in every 1,000 of the mean force borne for the whole year in the undermentioned squadrons was as follows:

In the force at home	2·03 per 1,000
In the force abroad	3·46 "
In the whole force at home and abroad	2·83 "

Cape of Good Hope	0·74 per 1,000
"Home"	1·26 "
South-East Coast of America	1·62 "
Coast Guard Ships	2·25 "
Mediterranean	2·29 "
North America and West Indies	2·80 "
West Coast of Africa	2·93 "
Channel	4·52 "
Pacific	4·85 "
East Indies and China	5·86 "
Australia	8·00 "

15. The award of penal servitude was acted on in 10 instances in 1863, against 17 in the previous year. In 1863 the following sentences were carried into effect:

James Knight, ship's corporal, and Edward Perkins, 2d captain of the fore-top, Her Majesty's ship "Cameleon"; for desertion and for stealing a ship's boat; four years each.

John Lowe, private marine, Her Majesty's ship "Immortalité"; for desertion; remaining absent until brought on board as a prisoner in charge of an officer and escort from the United States' sloop of war "Sonoma"; four years.

James Wilsden, ordinary seaman, Her Majesty's ship "Nile"; for insulting and striking Thomas Ladd, boatswain's mate; four years.

Edwin Hoskins, A.B., Her Majesty's ship "Meeanee"; for striking Mr. Thomas Smith, gunner, with a drawn sword; for life.

James Nash, private marine, Her Majesty's ship "Cossack"; for striking a sergeant; five years.

Wm. Monk and W. T. Pugsley, boys, 1st class, Her Majesty's ship "Liffey"; for an unnatural crime; 10 years each.

James A'Hearn, gunner R.M.A., and Owen Newman, boy, 1st class, both of Her Majesty's ship "Rattlesnake"; for an unnatural crime; A'Hearn 15 years, Newman seven years.

Three of the men convicted of mutiny in Her Majesty's ship "Ringdove" were sentenced to seven years penal servitude each, but "*The Lords Commissioners of the Admiralty, considering that the act of the commander ——— of punishing the ship's company for the loss of a gong, which might have been caused by an individual, and without the knowledge of the rest of the crew, was contrary to the first principles of justice, were pleased to mitigate the sentence of penal servitude on Say, Carsons, and Davis, to one year's imprisonment with hard labour.*"*

16. The discharges with disgrace are somewhat lower in 1863 than they were in 1862; but the most convincing proof, however, that could be given of the better condition of the fleet in 1863, as compared with what it was in 1862, is in the diminution of corporal punishments, which are only inflicted for offences of the worst description. In 1862 the crimes were of such a nature as to call for this punishment on one in every 54 persons of the fleet. In 1863 the proportion was one in every 66 persons. But these latter proportions include boys as 382 of the punishments, and 11,196 of the lashes inflicted apply to them. It occurred to me, when I commenced compiling the Statistics of Crime and Punishments in 1863, that, seeing the great difference in the moral effect likely to be produced by flogging a *boy*, as compared with the same punishment inflicted on a grown-up *man*, it would be advisable to ascertain what proportion of the corporal punishments applied to men and what proportion to boys. I have just given the result of this inquiry, which shows that *more than half* the punishments in question were on boys; and a careful investigation of the warrants and reports in which these punishments are recorded convinces me that the delinquents for the same offences in a public school would most probably have been birched or expelled. "Flogging" a boy in the navy is, in fact, equivalent to "birching" a boy at school, and nothing more. In 1863 there were only 370 *men* flogged; that is, after deducting 8,000 boys from the average mean force borne for the whole year, one *man* in every 112 men borne. In particular squadrons the proportion is much less; for example, in the "Home" squadron it could not have exceeded one man in every 470, in the Channel squadron one in every 147, and in the Coast Guard ships one in every 508.

17. Imprisonments in the mean force borne for the year have increased from 3·17 per cent. in 1862, to 3·69 per cent. in 1863.

18. Confinement in cells on board has increased from 4·07 per cent. in 1862, to 4·25 per cent. in 1863.

19. Disrating, as a punishment, has decreased from 1·85 per cent. in 1862, to 1·76 per cent. in 1863.

20. In the reports of seven ships, in 1863, the numbers in the second class for conduct are not stated. Exclusive of those ships and their crews, consisting of 2,073 men and boys, the proportion of the second class in the several squadrons was as follows:

In the force at home - - - - - - -	9·1 per cent.
In the force abroad - - - - - - -	14·3 ,,
In the whole force at home and abroad - - - -	12·0 ,,

There is some little difference between the above proportions and those for the year preceding. The proportion of second class men in the several squadrons in 1863 was—

Drill ships at home - - - - - - -	1·3 per cent.
"Home" - - - - - - - - - -	6·7 ,,
Coast Guard ships - - - - - - -	9·2 ,,
Cape of Good Hope - - - - - - -	12·9 ,,
West Coast of Africa - - - - - - -	12·6 ,,
North America and West Indies - - - - -	12·8 ,,
Pacific - - - - - - - - - -	13·5 ,,
East Indies and China - - - - - - -	14·4 ,,
Australia - - - - - - - - - -	15·3 ,,
Mediterranean - - - - - - - - -	15·7 ,,
South-East Coast of America - - - - -	16·4 ,,
Channel - - - - - - - - - -	17·8 ,,

The tendency has been for the proportion of second class men to increase, but it is expected that this tendency will be checked by the new rule under which restitution to the first class may be attained six months after reduction, and even sooner in special cases. The old rule of 12 months' probation was probably found to be too long for seamen, who seldom remain more than two or three years under the same officers, and who, therefore, if reduced in the middle of a ship's commission, might be disposed to give up the hope of redeeming their position in the same ship, and become careless. I must say, however, that I have observed, in some ships' returns, that reduction to the second class is resorted to as an ordinary punishment, even for offences, which (so far as the description of them can serve as a guide whereon to form a judgment) might be considered trivial. I apprehend their Lordships never intended this penalty to be applied except for an offence of so grave a nature in itself, or a venial offence combined with a number of other offences, such as would justly deprive the delinquent of the character of "*Good*" if he were about to be discharged from his ship.

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* *Vide* Quarterly Return of Naval Courts-Martial, September 1863.

21. The proportion of men deprived of good conduct badges has increased in 1863, so also has the number discharged as objectionable.

22. The proportion of minor punishments awarded has increased, and this may be partly accounted for by the circumstance mentioned in the fifth paragraph of this report. There were 8,627 more minor punishments in 1863 than in 1862; but in 1863 there were nearly 6,000 more cases of leave breaking and minor offences *recorded* than in the year preceding.

23. Of course there is a large number of men who from year to year have no punishment whatever. There are others again who are seldom "out of the report," and these determined defaulters are those who are ultimately discharged as incorrigible or objectionable. It is astonishing, however, how much trouble they give before they are got rid of. I have now before me the punishment return of the ———, to 30th June 1863, in which the captain remarks, "Out of the 140 punishments awarded during the quarter, 66 have been inflicted on 13 persons; and out of the whole number of punishments inflicted during the ship's commission (seven months), namely 321, no less than 102 have been inflicted on the same individuals." In another ship's return for the same quarter there are 75 punishments, and 35 of them apply to only eight persons. The 13 defaulters in the first instance quoted, represent 5·6 per cent. of the crew, and they received 47·1 per cent. of the punishments. In the second instance, the eight offenders represent 14·8 per cent. of the crew, and they received 46·7 per cent. of the punishments. These disproportions of crime are not by any means confined to minor cases, for it often happens that the same individual is flogged or imprisoned more than once during the year.

24. The average number of days during which the sea-going ships attached to the undermentioned squadrons abroad were at sea in the course of the year 1863, may be stated as follows:

West Coast of Africa	205 days.
Cape of Good Hope	165 ,,
Pacific	140 ,,
North America and West Indies	125 ,,
South-East Coast of America	91 ,,
Mediterranean	86 ,,
East Indies and China	73 ,,
Australia	The information under this head is so imperfectly given in the ships' returns, that it is not worth quoting.

There is little or no drunkenness at sea. With regard to that offence it will be seen that the squadrons stand very much in the same order as in the foregoing table.

25. I am quite aware of the necessity of bringing these reports up to a later period than they have heretofore been rendered, and I am using every exertion to do so. As soon as the arrears are disposed of, I believe it will be found possible to close the report seven or eight months after the end of the year, provided that care be taken on distant stations to send home the returns as early as may be after they are due.

I have, &c.
(signed) W. HICKMAN.

The Secretary of the Admiralty.

LIST OF SHIPS REFERRED TO IN THE FOLLOWING TABLES.

Distinguishing Number.	Name of Ship.
139	Aboukir.
172	Acorn.
93	Active.
1	Adventure.
82	Ajax.
101	Alacrity.
2 277	Alecto.
3	Alert.
173	Algerine.
234	Antelop
235	Archer.
278	Ardent.
174	Argus.
140	Ariadne.
226	Ariel.
4	Asia.
5	Aurora.
261	Bacchante.
141	Barracouta.
175	Barrosa.
176	Beagle.
73	Black Prince.
83	Blenheim.
236	Bloodhound.
6	Boscawen.
177	Bouncer.
94	Brilliant.
237	Brisk.
7	Britannia.
178	Bustard.
8 142	Buzzard.
9 143	Cadmus.
10	Cambridge.
262	Camelion.
11	Canopus.
102	Caradoc.
95	Castor.
179	Centaur.
144	Challenger.
103	Chanticleer.
263	Charybdis.
264	Clio.
180	Clown.
104	Cockatrice.
181	Cockchafer.
84	Colossus.
12	Columbine.
13	Conqueror.
184	Coquette.
183	Cormorant.
85	Cornwallis.
182	Coromandel.
14 105	Cossack.
15	Cumberland.
16 289	Curaçoa.
279	Curlew.
145	Cygnet.
96	Dædalus.
238	Dart.
17	Dasher.
86	Dauntless.
18	Dee.
74	Defence.
146	Desperate.
265	Devastation.
280	Doterel.
239	Dromedary.
19 30	Duke of Wellington.
97	Eagle.
290	Eclipse.
75 106	Edgar.
87	Edinburgh.
20 281	Egmont.
76	Emerald.
21	Enchantress.
185	Encounter.
22 291	Esk.
240	Espoir.
186	Euryalus.
23	Excellent.
24	Falcon.
292	Fawn.
107 147	Firebrand.
108	Firefly.
187	Firm.
25	Fisgard.
188	Flamer.
26	Formidable.
282	Forte.
266	Forward.
27	Fox.
109	Foxhound.
148	Galatea.
110	Gannet.
28	Geyser.
29 111	Gibraltar.
227	Gorgon.
267	Grappler.
189	Grasshopper.
149	Greyhound.
241	Griffon.
242	Handy.
19 30	Hannibal.
191	Hardy.
293	Harrier.

Distinguishing Number.	Name of Ship.
31	Hastings.
190	Haughty.
192	Havoc.
88	Hawke.
268	Hecate.
193	Hesper.
112	Hibernia.
32	Himalaya.
89	Hogue.
194	Hornet.
33 113	Hydra.
114	Icarus.
150	Immortalité.
195	Impérieuse.
34	Implacable.
35	Impregnable.
36	Indus.
37	Industry.
196	Insolent.
244	Isis.
243	Investigator.
38	Jackal.
197	Janus.
245	Jaseur.
151	Jason.
198	Kestrel.
152	Landrail.
39 268	Leander.
246	Lee.
199	Leopard.
200	Leven.
115	Liffey
153	Lily.
77	Liverpool.
116	London.
40	Lyra.
247	Meander.
283	Madagascar.
201	Manilla.
117	Magicienne.
90	Majestic.
118	Malacca.
119	Marlborough.
120	Mars.
154	Medea.
121	Medina.
41	Medusa.
122	Meeanee.
42	Megæra.
155	Melpomene.
294	Miranda.
248	Mullet.
269	Mutine.
270	Naiad.
228	Narcissus.
271	Nereus.
156	Nile.
157	Nimble.
202	Odin.
229	Orestes.
43 123 158	Orlando.
44	Orontes.
45	Osborne.
203	Osprey.
46 249	Pandora.
204	Pantaloon.
205	Pearl.
124	Pelican.
47	Pelorus.
91	Pembroke.
230	Penguin.
206	Perseus.
159	Peterel.
160	Phæton.
250	Philomel.
125	Phœbe.
48	Pigmy.
295	Pioneer.
161	Plover.
98	President.
207	Princess Charlotte.
126	Procris.
127	Psyche.
162	Pylades.
128	Queen.
208	Racehorse.
49 129	Racoon.
251	Ranger.
231	Rapid.
209	Rattler.
252	Rattlesnake.
50 59 255	Recruit.
210	Reynard.
78	Resistance.
79 130	Revenge.
51	Rhadamanthus.
211	Rifleman.
163	Rinaldo.
212	Ringdove.
164	Rosario.
52	Royal Adelaide.
53	Royalist.
80	Royal Oak.
92	Russell.
133	St. George.
60	St. Vincent.
213	Sans Pareil.
284	Satellite.
54	Saturn.
214	Scout.
55 131	Scylla.
232	Seringapatam.
215	Severn.
132 165	Shannon.
56 272	Shearwater.
57	Sheerness Barracks.
285	Sheldrake.
216	Slaney.

Distinguishing Number.	Name of Ship.	Distinguishing Number.	Name of Ship.	Distinguishing Number.	Name of Ship.
217	Snake.	62	Tamar.	68	Vigilant.
218	Snap.	222	Tartar.	223	
58	Snipe.	274		257	Vindictive.
253		63	Termagant.	69	Virago.
254	Sparrow.	169	Terror.	171	
50	Speedwell.	275	Topaze.	224	Vulcan.
59		256	Torch.		
255		135	Trafalgar.	173	Wanderer.
219	Sphinx.	276	Tribune.	81	Warrior.
286	Spider.	136	Trident.	70	Wasp.
166	Spiteful.	99	Trincomalee.	225	Weazel.
220	Staunch.	64	Triton.	71	Wellesley.
167	Steady.	288		138	Weser.
287	Stromboli.			100	Winchester.
168	Styx.	65	Valorous.	258	Wrangler.
61	Supply.	233		72	Wye.
134	Surprise.	170	Vesuvius.	259	
273	Sutlej.	66	Victoria and Albert.		
221	Swallow.	67	Victory.	260	Zebra.

Station, “HOME,” other than the Channel Squadron, Coast Guard Ships, and Drill Ships.

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
		From	To		Whether Summarily or by Court-Martial	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
													Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
1	Adventure (Troop Ship) - -	1 Jan. -	31 Dec. -	131	S.	369	2816·79	–	–	–	–	–	–	–	25	190·84	5	38·17	36	274·81	231	1763·36	76	580·15	373
2 } 277 }	Alecto - - - - -	21 Jan. -	31 Mar. -	86	S.	28	–	–	–	–	–	–	–	–	2	–	1	–	–	–	11	–	15	–	29
3	Alert - - - - - -	14 May -	31 Dec. -	151	S.	328	3416·66	–	–	–	–	–	–	–	17	177·08	–	–	25	260·42	141	1468·75	154	1604·17	337
4	Asia (Guard Ship of Reserve at Portsmouth).	1 Jan. -	31 Dec. -	1,257	S. C. M.	1,289 1	1026·25 –	– –	– –	– –	– –	– –	9 –	7·16 –	76 1	61·26 –	5 –	3·98	47 –	37·41 –	1,044 –	830·55 –	121 –	96·26 –	1,302 1
5	Aurora - - - - - -	16 Nov. -	31 Dec. -	447	S.	153	–	–	–	–	–	–	–	–	2	–	–	–	1	–	119	–	31	–	153
6	Boscawen (Training Ship for Boys at Southampton).	1 Jan. -	31 Dec. -	400	S.	653	1632·50	–	–	–	–	3	7	17·50	25	62·50	14	35·00	7	17·50	85	212·50	514	1285·00	655
7	Britannia (Training Ship for Naval Cadets at Dartmouth).	1 Jan. -	31 Dec. -	225	S.	460	2044·44	–	–	–	–	–	4	17·78	32	142·22	3	13·33	26	115·55	235	1044·44	163	724·44	463
8 } 142 }	Buzzard - - - - -	21 Jan. -	31 Mar. -	156	S.	51	–	–	–	–	–	–	–	–	3	–	–	–	3	–	14	–	34	–	54
9 } 143 }	Cadmus - - - - -	1 April -	6 May -	217	S.	40	–	–	–	–	–	–	–	–	–	–	1	–	3	–	34	–	4	–	42
10	Cambridge (Gunnery Ship at Plymouth).	1 Jan. -	31 Dec. -	676	S. C. M.	726 2	1076·92 –	– –	– –	– –	– –	– –	1 1	2·96 –	16 –	23·67 –	2 2	5·92 –	39 –	57·69 –	301 –	445·27 –	381 –	563·71 –	740 3
11	Canopus (Receiving Ship at Plymouth).	8 Feb. -	31 Dec. -	367	S.	1,142	3471·12	–	–	–	–	–	2	6·08	61	185·41	4	12·16	90	273·56	839	2550·15	218	662·61	1,214
12	Columbine - - - -	13 May -	31 Dec. -	111	S.	472	6647·88	–	–	–	–	–	–	–	24	338·03	–	–	51	718·31	107	1507·04	301	4239·44	483
13	Conqueror - - - -	24 Nov. -	31 Dec. -	985	S.	194	–	–	–	–	–	–	–	–	3	–	1	–	4	–	74	–	112	–	194
14 } 105 }	Cossack - - - - -	14 May -	30 June -	197	S.	123	–	–	–	–	–	–	–	–	3	–	–	–	10	–	91	–	25	–	129
15	Cumberland (Guard Ship of Reserve, at Sheerness).	1 Jan. -	31 Dec. -	911	S.	919	1008·78	–	–	–	–	–	11	12·07	36	39·52	5	5·49	119	130·63	796	873·76	26	28·54	993
16 } 289 }	Curaçoa - - - - -	20 April -	30 June -	300	S.	205	–	–	–	–	–	–	–	–	2	–	1	–	5	–	96	–	106	–	210

(PUNISHMENTS.)

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.							
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.															Number.	Lashes.		
1	Adventure	S.	–	–	–	1	3	114	3	105	8	7	9	11	3	341	22·90	870·23	22·90	801·53	7·63	22	16·8	179	3	114	- - - -	15
2 277	Alecto	S.	–	–	–	–	–	–	1	28	–	1	–	1	–	28	–	–	–	–	–	7	8·1	22	–	–	Proportions cast at No. 277.	1
3	Alert	S.	–	–	–	–	1	24	1	28	–	4	8	11	–	310	10·42	250·00	10·42	291·67	–	19	12·6	76	1	24	- - - -	2
4	Asia	S.	–	–	–	3	3	72	38	1,658	39	5	16	79	16	1,227	3·18	95·46	31·03	1899·76	3·18	65	5·2	–	3	72	- - - -	35
		C. M.	–	–	–	1	1	48	1	730																		
5	Aurora	S.	–	–	–	–	–	–	1	42	2	–	1	1	1	148	–	–	–	–	–	40	8·9	2	–	–	- - - -	2
6	Boscawen	S.	–	–	–	3	12	276	1	28	22	2	2	3	4	613	30·00	690·00	2·50	70·00	7·50	2	0·5	–	12	276	- - - -	11
7	Britannia	S.	–	–	–		4	78	12	472	–	1	5	18	7	443	17·78	346·67	53·34	2097·78	–	13	5·8	2	4	78	- - - -	4
8 142	Buzzard	S.	–	–	–	–	–	–	1	21	–	–	–	3	–	21	–	–	–	–	–	13	8·3	38	–	–	Proportions cast at No. 142.	–
9 143	Cadmus	S.	–	–	–	–	1	24	1	28	2	2	3	4	–	32	–	–	–	–	–	37	17·1	2	1	24	- - - -	–
10	Cambridge	S.	–	–	–	–	–	–	14	322	14	4	18	22	–	697	–	–	23·67	1285·50	1·48	10	1·5	–	–	–	- - - -	2
		C. M.	–	–	–	1	–	–	2	547																		
11	Canopus	S.	–	–	–	–	3	102	21	665	23	–	14	36	15	1,096	9·12	310·03	63·83	2021·28	–	30	8·2	–	–	–	- - - -	9
12	Columbine	S.	–	–	–	–	3	96	8	238	–	8	5	13	–	453	42·25	1352·11	112·68	3352·11	–	12	10·8	107	2	48	- - - -	5
13	Conqueror	S.	–	–	–	–	–	–	–	–	1	1	–	1	–	192	–	–	–	–	–	139	14·1	18	–	–	- - - -	5
14 105	Cossack	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	123	–	–	–	–	–	24	12·2	15	–	–	Proportions cast at No. 105.	2
15	Cumberland	S.	–	–	–	–	1	24	29	1,191	16	5	12	44	5	854	1·10	26·35	31·83	1307·35	–	29	3·2	–	1	24	- - - -	–
16	Curaçoa	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	205	–	–	–	–	–	20	6·7	32	–	–	Proportions cast at No. 289.	5

(OFFENCES.) Station, "HOME," other than the Channel Squadron, Coast Guard Ships, and Drill Ships—*continued.*

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
17	Dasher and Tenders (stationed at the Channel Islands).	1 Jan.	31 Dec. -	113	S.	33	292·04	–	–	–	–	–	1	8·85	1	8·85	3	26·55	3	26·55	17	150·43	9	79·65	34
18	Dee (Store Ship) - - -	1 Jan. -	31 Dec. -	55	S.	109	1981·82	–	–	–	–	–	–	–	8	145·45	1	18·18	9	163·64	85	1545·45	14	254·55	117
19	Hannibal - - - - - and	2 Feb. -	30 April -	766	S.	472	2953·62	–	–	–	–	–	2	29·68	11	89·05	–	3·71	33	176·25	374	2204·08	56	486·09	476
30	Duke of Wellington (Receiving Ships, at Portsmouth).	1 May -	31 Dec. -	528	S.	1,120	–	–	–	–	–	–	14	–	37	–	2	–	62	–	814	–	206	–	1,135
20 281	Egmont - - - - -	1 Jan. -	31 Mar. -	238	S.	267	–	–	–	–	–	–	–	–	15	–	–	–	4	–	49	–	203	–	271
21	Enchantress - - - -	1 June -	31 Dec. -	36	S.	9	428·57	–	–	–	–	–	–	–	–	–	–	–	–	–	9	428·57	–	–	9
22 291	Esk - - - - -	19 May -	30 June -	207	S.	171	–	–	–	–	–	–	–	–	2	–	–	–	2	–	117	–	53	–	174
23	Excellent (Gunnery Ship, at Portsmouth).	1 Jan. -	31 Dec. -	886	S.	1,392	1571·11	–	–	–	–	–	9	10·16	44	49·16	21	23·70	53	59·82	539	608·35	746	841·99	1,412
24	Falcon - - - - -	22 Oct. -	31 Dec. -	178	S.	109	–	–	–	–	–	–	1	–	3	–	–	–	5	–	25	–	75	–	109
25	Fisgard (Receiving Ship, at Woolwich).	1 Jan. -	31 Dec. -	252	S.	544	2158·73	–	–	–	–	–	28	111·11	14	55·55	10	39·68	7	27·78	439	1742·06	47	186·51	545
26	Formidable (Flag Ship, at Sheerness).	1 Jan. -	31 Dec. -	239	S. C. M.	973 1	4075·31 –	– –	– –	– –	– –	– –	10 –	41·84 –	83 –	347·28 –	4 1	20·92 –	80 –	334·73 –	461 –	1928·87 –	376 –	1573·22 –	1,014 1
27	Fox (Store Ship) - - -	1 Jan. -	31 Dec. -	84	S.	154	1833·33	–	–	–	–	–	–	–	22	261·90	–	–	19	226·19	108	1285·72	19	226·19	168
28	Geyser - - - - -	1 Jan. -	31 Dec. -	151	S.	411	2721·85	–	–	–	–	–	2	13·24	21	139·07	1	6·62	11	72·85	266	1761·59	117	774·83	418
29 111	Gibraltar - - - - -	12 Sept. -	30 Sept. -	835	S.	27	–	–	–	–	–	–	–	–	2	–	–	–	5	–	23	–	2	–	32
30 19	Hannibal (included with "Duke of Wellington," No. 19, crew having been turned over).																								

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																		
17	Dasher and Tenders	S.	–	–	–	–	3	66	1	14	–	1	–	2	–	31	26·55	583·98	8·85	123·89	–	3	2·7	6	3	66	- - - -	5
18	Dee	S.	–	–	–	–	–	–	6	182	–	1	4	9	–	102	–	–	109·09	3309·09	–	4	7·3	57	–	–	- - - -	6
19	Hannibal and	S.	–	–	–	–	–	–	8	284	4	2	–	7	6	466	–	–	83·49	3636·36	–	47	8·3	–	–	–	- - - -	13
30	Duke of Wellington	S.	–	–	–	–	–	–	37	1,676	13	–	17	36	10	1,116						44						61
20 281	Egmont	S.	–	–	–	1	–	–	1	42	5	1	1	4	–	257	–	–	–	–	–	–	–	–	–	–	Proportions cast at No. 281.	–
21	Enchantress	S.	–	–	–	–	–	–	1	28	–	–	–	1	–	9	–	–	47·62	1333·33	–	2	5·6	24	–	–	- - - -	–
22 291	Esk	S.	–	–	–	–	–	–	–	–	–	2	–	4	1	170	–	–	–	–	–	21	10·1	12	–	–	Proportions cast at No. 291.	2
23	Excellent	S.	–	–	–	5	10	234	30	928	62	12	25	55	6	1,328	11·29	264·11	33·86	1047·40	5·64	31	3·5	–	10	234	- - - -	23
24	Falcon	S.	–	–	–	–	–	–	1	42	–	–	2	3	–	104	–	–	–	–	–	19	10·7	45	–	–	- - - -	1
25	Fisgard	S.	–	–	–	–	1	24	74	3,602	11	2	1	45	35	474	3·97	95·24	293·65	14293·65	–	Not stated		–	1	24	- - - -	91
26	Formidable	S.	–	–	–	2	9	255	18	679	31	3	6	28	4	884	37·66	1066·95	79·50	5895·40	12·55	16	6·7	–	9	255	- - - -	14
		C. M.	–	–	–	1	–	–	1	730																		
27	Fox	S.	–	–	–	–	–	–	9	338	1	2	6	13	1	147	–	–	107·14	4023·81	–	9	10·7	61	–	–	- - - -	–
28	Geyser	S.	–	–	–	–	1	36	22	766	4	–	9	10	6	391	6·62	238·41	145·69	5072·85	–	25	16·7	95	–	–	- - - -	13
29 111	Gibraltar	S.	–	–	–	–	–	–	–	–	1	–	–	–	–	20	–	–	–	–	–	Not stated		–	–	–	- - - -	–
30 19	Hannibal	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	- - - -	–

(OFFENCES.) Station, "HOME," other than the Channel Squadron, Coast Guard Ships, and Drill Ships—*continued.*

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
31	Hastings (Flag Ship, at Cork) -	1 Jan. -	31 Dec. -	210	S. C. M.	160 2	771·43 –	– –	– –	– –	– –	– –	– –	– –	14 2	76·19 –	1 –	4·76 –	13 –	61·90 –	49 –	233·33 –	88 –	419·05 –	165 2
32	Himalaya (Troop Ship) - -	1 Jan. -	31 Dec. -	195	S.	383	1912·83	–	–	–	–	–	3	15·38	22	112·82	5	25·64	53	271·80	164	841·03	153	784·62	400
33 113	Hydra. (No Return in Office) -	- -	- -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
34	Implacable (Training Ship for Boys, at Plymouth).	1 Jan. -	31 Dec. -	453	S.	466	1028·70	–	–	–	–	–	10	22·07	6	13·24	9	19·87	14	30·91	54	119·21	381	841·06	474
35	Impregnable (Training Ship for Boys, at Plymouth).	1 Jan. -	31 Dec. -	757	S.	446	589·17	–	–	–	–	6	11	14·53	23	30·38	28	36·99	8	10·57	27	35·67	343	453·10	446
36	Indus (Guard Ship of Reserve, at Plymouth).	1 Jan. -	31 Dec. -	1,149	S. C. M.	1,010 5	883·38 –	– –	– –	– –	– –	– –	7 4	9·57 –	59 1	52·22 –	9 –	7·83 –	75 –	65·27 –	621 –	540·47 –	300 –	261·09 –	1,071 5
37	Industry (Store Ship) - -	1 Jan. -	31 Dec. -	50	S.	87	1740·00	–	–	–	–	–	1	20·00	4	80·00	–	–	4	80·00	67	1340·00	14	280·00	90
38	Jackal - - - - - -	1 Jan. -	31 Dec. -	50	S.	56	1120·00	–	–	–	–	–	2	40·00	2	40·00	2	40·00	2	40·00	46	920·00	5	100·00	59
39 268	Leander - - - - -	14 April	30 June -	433	S.	197	–	–	–	–	–	–	–	–	5	–	2	–	10	–	104	–	77	–	198
40	Lyra - - - - - -	22 Dec. -	31 Dec. -	68	S.	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
41	Medusa - - - - -	1 Sept.	31 Dec. -	49	S.	30	–	–	–	–	–	–	–	–	–	–	–	–	2	–	27	–	1	–	30
42	Megæra (Troop Ship) - -	1 Jan. -	31 Dec. -	145	S.	265	1827·59	–	–	–	–	–	1	6·90	23	158·62	–	–	37	255·17	102	703·45	103	710·24	266
43 123 158	Orlando - - - - -	1 April	30 June -	545	S.	430	–	–	–	–	–	–	3	–	18	–	–	–	34	–	321	–	62	–	438
44	Orontes (Troop Ship) - -	20 April	31 Dec. -	183	S.	316	2430·77	–	–	–	–	–	–	–	26	200·00	3	23·08	23	176·92	170	1307·69	108	830·77	330
45	Osborne - - - - -	1 Jan. -	31 Dec. -	73	S.	74	1036·99	–	–	–	–	–	1	13·70	5	68·49	–	–	6	82·19	50	684·93	15	205·48	77
46 249	Pandora - - - - -	20 Mar. -	31 Mar. -	45	–	Nil -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																		
31	Hastings	S.	–	–	–	–	–	–	–	–	4	–	1	4	–	155	4·76	171·43	9·52	4342·86	–	4	1·9	–	–	–	–	8
		C.M.	–	–	–	–	1	36	2	912	–	–	–	–	1													
32	Himalaya	S.	–	–	–	–	4	120	–	–	–	7	15	10	1	369	20·51	615·38	–	–	–	32	16·4	211½	3	84	–	6
33 113	Hydra	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
34	Implacable	S.	–	–	–	1	13	270	5	140	11	2	4	2	3	450	28·70	596·03	11·04	309·05	2·21	2	0·4	–	13	270	–	10
35	Impregnable	S.	–	–	–	–	14	250	1	28	29	–	6	1	8	394	18·49	330·25	1·32	36·99	–	3	0·4	–	14	250	–	–
36	Indus	S.	–	–	–	–	1	12	31	678	34	7	25	55	29	932	1·74	41·78	31·33	1860·75	–	49	4·3	–	1	12	–	28
		C.M.	–	–	–	–	1	36	5	1,460																		
37	Industry	S.	–	–	–	–	–	–	3	146	–	–	4	3	–	79	–	–	60·00	2920·00	–	6	12·0	139	–	–	–	4
38	Jackal	S.	–	–	–	–	–	–	7	272	–	1	5	5	3	47	–	–	140·00	5440·00	–	3	6·0	*	–	–	* Cruizing W. C. of Scotland.	2
39 268	Leander	S.	–	–	–	–	–	–	–	–	–	1	3	1	–	193	–	–	–	–	–	not stated		–	–	–	Proportions cast at No. 268.	–
40	Lyra	S.	–	–	–	–	–	–	1	42	–	–	–	–	–	–	–	–	–	–	–	8	11·8	–	–	–	–	–
41	Medusa	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	30	–	–	–	–	–	4	8·2	27	–	–	–	–
42	Megæra	S.	–	–	–	–	2	60	7	187	–	4	9	14	4	247	13·79	413·72	48·28	1829·66	–	16	10·4	228	1	24	–	6
43 123 158	Orlando	S.	–	–	–	–	3	120	16	650	24	2	16	15	5	410	–	–	–	–	–	87	16·0	22	–	–	Proportions cast at No. 123.	12
44	Orontes	S.	–	–	–	–	1	48	9	333	7	5	7	7	–	292	7·69	369·23	69·23	2561·54	–	18	9·7	47	–	–	–	5
45	Osborne	S.	–	–	–	–	–	–	5	202	–	–	2	6	–	72	–	–	68·49	2767·12	–	4	5·5	26	–	–	–	3
46 249	Pandora	Nil.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Proportions cast at No. 249.	–

(OFFENCES.) Station, " HOME," other than the Channel Squadron, Coast Guard Ships, and Drill Ships—*continued.*

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
47	Pelorus - - - - - -	1 Oct. -	31 Dec. -	240	S.	250	–	–	–	–	–	–	–	–	8	–	3	–	7	–	96	–	136	–	250
48	Pigmy - - - - - -	1 Jan. -	31 Dec. -	22	S.	12	545·45	–	–	–	–	–	–	–	–	–	1	45·45	1	45·45	9	409·09	1	45·45	12
49 129	Racoon - - - - -	29 Jan. -	30 Sept. -	254	S.	514	2766·95	–	–	–	–	–	1	4·24	26	144·07	–	12·71	20	182·20	174	894·07	301	1614·40	522
50 59 255	Recruit (included in " Speedwell's" Abstract, *See* Nos. 59 and 255. Crew turned over to " Speedwell").																								
51	Rhadamanthus (included in " Dee's" Abstract. *See* No. 18. Crew turned over to " Dee").																								
52	Royal Adelaide (Flag Ship, at Plymouth).	1 Jan. -	31 Dec. -	485	S.	1,394	2874·23	–	–	–	–	–	37	76·29	32	65·98	2	4·12	61	125·77	459	946·39	826	1703·09	1,417
53	Royalist (no Return in Office) -	5 Nov. -	31 Dec. -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
54	Saturn (Guard Ship, at Milford)	1 Jan. -	31 Dec. -	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
55 131 214a	Scylla - - - - - -	9 Sept. -	30 Sept. -	162	S.	33	–	–	–	–	–	–	–	–	–	–	–	–	–	–	31	–	2	–	33
56 272	Shearwater - - - - -	1 Jan. -	31 Mar. -	114	S.	43	–	–	–	–	–	–	–	–	7	–	–	–	1	–	21	–	15	–	44
57	Sheerness (R. N. Barracks) -	8 Feb. -	31 Dec. -	225	S.	870	4328·36	–	–	–	–	–	1	4·97	48	238·81	2	9·95	92	457·71	662	3293·53	141	701·49	946
58 253	Snipe - - - - - -	8 Aug. -	30 Sept. -	53	S.	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	2	–	3
59 50 255	Speedwell, including " Recruit"	21 July -	30 Sept. -	54	S.	31	–	–	–	–	–	–	1	–	–	–	–	–	2	–	28	–	–	–	31
60	St. Vincent (Training Ship for Boys, at Portsmouth).	1 Jan. -	31 Dec. -	575	S.	739	1285·22	–	–	–	–	1	7	12·17	35	60·87	18	31·30	15	26·09	48	83·48	620	1078·26	744
61	Supply (Store Ship) - - -	1 Jan. -	31 Dec. -	44	S.	92	2090·91	–	–	–	–	–	1	22·73	4	90·91	–	–	5	113·64	74	1681·82	12	272·73	96

(PUNISHMENTS.)

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
				Penal Servitude.			Corporal.		Imprisonment.																			
			Death.	Number.	Years.	Discharged with Disgrace.	Number. (a)	Lashes. (a)	Number.	Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
47	Pelorus	S.	–	–	–	–	1	36	1	21	1	1	6	11	–	246	–	–	–	–	–	26	–	42	–	–	–	1
48	Pigmy	S.	–	–	–	–	–	–	1	28	–	–	2	2	3	10	–	–	45·45	1272·73	–	1	4·5	18	–	–	–	–
49 129	Racoon	S.	–	–	–	–	6	216	5	196	–	2	5	24	1	495	33·90	1271·19	38·14	1216·10	–	16	6·3	74	6	216	Proportions include entries at No. 129.	8
50 59 255	Recruit	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
51	Rhadamanthus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
52	Royal Adelaide	S.	–	–	–	–	3	84	61	3,063	36	2	14	24	7	1,286	6·19	173·20	125·77	6315·46	–	38	7·8	–	3	84	–	–
53	Royalist	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
54	Saturn	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
55 131 214a	Scylla	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	33	–	–	–	–	–	30	18·6	1	–	–	–	–
56 272	Shearwater	S.	–	–	–	–	–	–	–	–	–	–	1	–	–	42	–	–	–	–	–	2	1·8	71	–	–	Proportions cast at No. 272.	–
57	Sheerness	S.	–	–	–	3	1	12	17	561	–	–	1	20	3	835	4·97	59·70	84·58	2791·04	14·92	29	12·9	–	1	12	–	–
58 253	Snipe	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	3	5·7	29	–	–	–	–
59 50 255	Speedwell	S.	–	–	–	–	–	–	–	–	–	1	–	1	–	29	–	–	–	–	–	6	11·1	–	–	–	–	–
60	St. Vincent	S.	–	–	–	–	21	444	1	28	3	1	9	3	7	714	36·52	772·17	1·74	48·70	–	2	0·3	–	21	444	–	–
61	Supply	S.	–	–	–	–	–	–	–	–	2	2	4	3	1	86	–	–	–	–	–	2	4·5	92	–	–	–	5

(OFFENCES.) Station, " HOME," other than the Channel Squadron, Coast Guard Ships, and Drill Ships—*continued.*

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
62	Tamar (Troop Ship) - - -	10 Oct. -	31 Dec. -	110	S.	118	–	–	–	–	–	–	–	–	5	–	1	–	6	–	88	–	22	–	122
63	Termagant - - - - -	1 Jan. -	9 Jan. -	270	S.	5	–	–	–	–	–	–	–	–	2	–	–	–	4	–	1	–	–	–	7
64 268	Triton - - - - -	23 Jan. -	31 Mar. -	72	S.	17	–	–	–	–	–	–	–	–	1	–	–	–	4	–	10	–	2	–	17
65 233	Valorous - - - - -	15 April	30 June -	150	S.	171	–	–	–	–	–	–	–	–	8	–	–	–	13	–	50	–	103	–	174
66	Victoria and Albert (the Royal Yacht).	1 Jan. -	31 Dec. -	121	S.	19	157·02	–	–	–	–	–	–	–	–	–	1	8·26	2	16·53	6	49·59	12	99·17	21
67	Victory (Flag Ship, at Portsmouth).	1 Jan. -	31 Dec. -	545	S. C. M.	1,178 2	2165·14 –	– –	– –	– –	– –	– –	25 –	45·87 –	57 1	106·42 –	8 1	16·51 –	54 –	99·08 –	685 –	1256·88 –	366 –	671·56 –	1,195 2
68 292	Vigilant - - - - -	13 Feb. -	30 June -	77	S.	106	–	–	–	–	–	–	–	–	6	–	1	–	9	–	28	–	64	–	108
69 171	Virago - - - - -	1 Jan. -	30 June -	142	S.	294	–	–	–	–	–	–	1	–	22	–	1	–	19	–	156	–	99	–	298
70	Wasp - - - - -	16 Nov. -	31 Dec. -	181	S.	47	–	–	–	–	–	–	–	–	2	–	–	–	–	–	28	–	17	–	47
71	Wellesley (Guard Ship and Training Ship for Boys, at Chatham).	1 Jan. -	31 Dec. -	475	S. C. M.	246 1	520·00 –	– –	– –	– –	– –	1 –	6 –	12·63 –	15 1	33·68 –	4 –	8·42 –	32 –	67·37 –	108 –	227·37 –	89 –	187·37 –	255 1
72 259	Wye (Store Ship) - - -	1 Jan. -	30 Sept -	57	S.	159	3410·71	–	–	–	–	–	–	–	19	410·71	1	17·86	10	196·43	134	2392·86	5	571·43	169
	TOTALS - -			*20,121	–	23,219	1723·88	–	–	–	–	11	225	16·71	1,100	81·67	190	14·11	1,397	103·72	12,244	909·65	8,689	645·11	23,856

* The average mean force in this Division of the Fleet for the whole year was 13,469, and on that number the proportions are cast.

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.							
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.															Number.	Lashes.		
62	Tamar	S.	–	–	–	–	–	–	2	56	2	4	4	7	–	117	–	–	–	–	–	30	27·3	5	–	–	– – –	3
63	Termagant	S.	–	–	–	–	–	–	2	70	–	–	–	–	–	3	–	–	–	–	–	not stated.						
64 288	Triton	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	17	–	–	–	–	–	7	9·7	45	–	–	Proportions cast at No. 288.	1
65 233	Valorous	S.	–	–	–	–	–	–	–	–	–	1	6	1	–	163	–	–	–	–	–	14	9·3	48	–	–	Proportions cast at No. 233.	
66	Victoria and Albert	S.	–	–	–	–	–	–	–	–	–	1	3	1	–	16	–	–	–	–	–	–	–	15				
67	Victory	S. C. M.	– –	– –	– –	1 2	4 1	96 48	35 2	1,574 1,095	14 –	5 –	12 –	37 1	3	1,114	9·17	264·22	67·89	4897·25	5·50	35	6·4	–	4	96		
68 223	Vigilant	S.	–	–	–	–	1	24	1	28	–	4	6	5	–	103	–	–	–	–	–	5	6·5	85	–	–	Proportions cast at No. 223.	1
69 171	Virago	S.	–	–	–	–	2	48	2	42	5	2	3	15	3	276	–	–	–	–	–	22	15·5	47	2	48	Proportions cast at No. 171.	8
70	Wasp	S.	–	–	–	–	1	30	–	–	–	–	–	–	–	46	–	–	–	–	–	15	8·3	15	1	30	– –	2
71	Wellesley	S. C. M.	– –	– –	– –	– 1	6 1	132 48	3	98	14	2	12	7	8	215	14·74	378·95	6·32	206·32	2·11	5	1·1	–	6	132	– – –	9
72 259	Wye	S.	–	–	–	–	–	–	9	280	–	3	2	6	1	149	–	–	160·71	5000·00	–	5	8·8	49	–	–	Proportions include entries at No. 259.	
	TOTALS	=	–	–	–	26	144	3643	577	27,603	445	126	351	755	211	21,955	10·69	270·47	42·84	2049·37	1·93	1,214	6·7	–	126	2,941		–

Station, "CHANNEL SQUADRON."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																		Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.							
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.			
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
73	Black Prince - - - -	1 Jan. -	31 Dec. -	659	S. C. M.	2,243 5	3411·23 –	– –	– –	– –	– –	– –	5 1	9·10 –	62 4	100·15 –	8 –	12·14 –	134 –	203·34 –	1,305 1	1981·79 –	774 –	1174·51 –	2,288 6
74	Defence - - - - -	1 Jan. -	31 Dec. -	448	S.	1,526	3406·25	–	–	–	–	–	5	11·16	113	252·23	11	24·55	90	200·89	689	1537·95	645	1439·73	1,553
75 106	Edgar - - - - -	1 April -	31 Dec. -	710	S. C. M.	2,266 5	3707·08 –	– –	– –	– –	– –	– –	3 2	6·81 –	115 –	201·63 –	3 1	6·81 –	196 –	450·09 –	1,016 2	1551·77 –	1,033 –	1711·77 –	2,366 5
76	Emerald - - - - -	1 Jan. -	20 Nov. -	465	S.	877	2123·49	–	–	–	–	–	2	4·84	45	108·96	9	21·79	83	200·97	521	1261·50	238	576·27	898
77	Liverpool - - - - -	30 April -	31 Dec. -	458	S. C. M.	984 1	3208·47 –	– –	– –	– –	– –	– –	– 1	3·26 –	54 1	179·15 –	3 –	9·77 –	51 –	166·12 –	391 –	1273·62 –	501 –	1631·92 –	1,000 2
78	Resistance - - - -	1 Jan. -	31 Dec. -	454	S. C. M.	2,067 4	4561·67 –	– –	– –	– –	– –	– –	7 2	19·82 –	93 2	209·25 –	6 –	13·22 –	127 –	279·74 –	699 –	1539·65 –	1,177 –	2592·51 –	2,109 4
79 130	Revenge - - - - -	1 Jan. -	31 Mar. -	749	S. C. M.	607 2	– –	– –	– –	– –	– –	– –	7 1	– –	37 1	– –	1 –	– –	26 –	– –	157 –	– –	383 –	– –	611 2
80	Royal Oak - - - -	27 April -	31 Dec. -	505	S. C. M.	1,134 2	3311·95 –	– –	– –	– –	– –	1 –	6 –	17·49 –	50 1	148·69 –	7 –	20·42 –	43 1	128·28 –	712 –	2075·80 –	328 –	956·27 –	1,147 2
81	Warrior - - - - -	1 Jan. -	31 Dec. -	641	S.	2,163	3374·41	–	–	–	–	1	5	7·80	91	141·97	9	14·04	107	166·93	1,144	1784·71	858	1338·53	2,215
		TOTALS - - -		5,089*	–	13,886	3485·44	–	–	–	–	2	47	11·80	669	167·92	58	14·56	858	215·36	6,637	1665·91	5,937	1490·21	14,208

* The average number borne for the whole year is 3,984, and for that number the proportions are cast.

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS. Death.	Penal Servitude. Number.	Penal Servitude. Years.	Discharged with Disgrace.	Corporal. Number. (a)	Corporal. Lashes. (a)	Imprisonment. Number.	Imprisonment. Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Average per 1,000 Men and Boys, per Year. Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.	Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys. Number.	(a) Including Boys. Lashes.	REMARKS.	Total Desertions.
73	Black Prince - - - - - -	S.	–	–	–	1	6	216	38	1,444	44	13	33	77	17	2,141	12·14	473·44	65·25	3711·68	1·52	86	13·0	76	2	72	- - -	22
		C.M.	–	–	–	–	2	96	5	1,003	–	–	–	2														
74	Defence - - - - - - -	S.	–	–	–	–	5	146	34	1,091	34	18	22	45	2	1,454	11·16	325·89	75·89	2435·27	–	89	19·9	97	2	54		
75 106	Edgar - - - - - - -	S.	–	–	–	–	12	378	41	1,497	39	29	24	70	3	2,182	23·16	776·57	74·93	3528·61	1·36	133	18·7	82	8	222	Proportions include the entries at No. 106.	49
		C.M.	–	–	–	–	1	48	5	869																		
76	Emerald - - - - - - -	S.	–	–	–	–	3	102	42	1,622	31	12	28	69	8	824	7·26	246·97	101·69	3927·36	–	133	28·6	52	2	66	- - -	11
77	Liverpool - - - - - -	S.	–	–	–	–	–	–	15	487	–	5	21	22	1	950	–	–	52·12	3368·08	–	41	8·9	71	–	–	- - -	29
		C.M.	–	–	–	–	–	–	1	547	–	–	–	–	1													
78	Resistance - - - - - -	S.	–	–	–	1	8	276	21	918	95	10	12	82	1	2,017	24·23	898·68	52·86	4165·19	2·20	98	21·6	78	7	240	- - -	15
		C.M.	–	–	–	–	3	132	3	973	–	–	–	–	2													
79 30	Revenge - - - - - - -	S.	–	–	–	–	2	72	10	522	15	1	3	28	17	565	–	–	–	–	–	188	25·1	16	–	–	Proportions cast at No. 130.	18
		C.M.	–	–	–	–	1	48	1	365	–	1	–	1	1													
80	Royal Oak - - - - - -	S.	–	–	–	2	2	54	24	1,092	10	3	13	54	1	1,080	5·83	157·43	72·89	3448·98	5·83	49	14·3	33	2	54	- - -	18
		C.M.	–	–	–	–	–	–	1	91	–	1	–	1	–	1												
81	Warrior - - - - - - -	S.	–	–	–	1	1	42	32	1,117	65	11	34	50	2	2,034	1·56	65·52	49·92	1742·59	1·56	89	13·9	52½	–	–	- - -	38
	TOTALS - - -		–	–	–	5	46	1,610	273	13,638	333	104	190	501	56	13,248	11·55	404·12	68·52	3423·19	1·25	906	17·8	–	23	708		–

(OFFENCES.)

Station, "COAST GUARD SHIPS and TENDERS."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
82	Ajax - - - - -	1 Jan. -	31 Dec. -	460	S.	1,114	2421·74	–	–	–	–	–	1	2·17	50	108·70	6	13·04	26	56·52	620	1347·83	413	897·83	1,116
83	Blenheim - - - - -	1 Jan. -	31 Dec. -	440	S. C.M.	782 1	1779·55 –	– –	– –	– –	– –	1 –	35 –	79·55 –	84 1	193·18 –	1 –	2·27 –	114 –	259·09 –	504 1	1147·73 –	131 –	297·73 –	870 2
84	Colossus - - - - -	1 Jan. -	31 Dec. -	485	S.	514	1059·79	–	–	–	–	–	2	4·12	27	55·67	4	8·25	30	61·85	346	713·40	114	235·05	523
85	Cornwallis - - - -	1 Jan. -	31 Dec. -	274	S.	1,064	3883·21	–	–	–	–	–	4	14·60	39	142·34	1	3·65	49	178·83	785	2864·96	205	748·17	1,083
86	Dauntless - - - -	1 Jan. -	31 Dec. -	268	S.	351	1309·70	–	–	–	–	–	1	3·73	15	55·97	1	3·73	5	18·66	239	891·79	93	347·02	354
87	Edinburgh - - - -	1 Jan. -	31 Dec. -	250	S.	946	3784·00	–	–	–	–	–	5	20·00	25	100·00	4	16·00	70	280·00	633	2532·00	225	900·00	962
88	Hawke - - - - -	1 Jan. -	31 Dec. -	437	S.	283	647·60	–	–	–	–	–	2	4·58	8	18·31	–	–	20	45·77	248	567·51	18	41·19	296
89	Hogue - - - - -	1 Jan. -	31 Dec. -	290	S. C.M.	823 2	2844·83 –	– –	– –	– –	– –	– –	16 –	55·17 –	53 2	189·66 –	4 –	13·79 –	67 –	231·03 –	564 –	1944·83 –	145 –	500·00 –	849 2
90	Majestic - - - - -	1 Jan. -	31 Dec. -	367	S. C.M.	1,072 4	2931·88 –	– –	– –	– –	– –	– –	13 3	43·60 –	47 1	130·79 –	8 –	21·80 –	50 –	136·22 –	810 –	2207·08 –	184 –	501·36 –	1,112 4
91	Pembroke - - - -	1 Jan. -	31 Dec. -	405	S. C.M.	1,017 2	2516·05 –	– –	– –	– –	– –	– –	2 1	7·41 –	66 –	162·96 –	3 –	7·41 –	64 –	158·02 –	550 1	1360·49 –	365 –	901·23 –	1,050 2
92	Russell - - - - -	1 Jan. -	31 Dec. -	325	S.	523	1609·23	–	–	–	–	2	3	9·23	39	120·00	1	3·08	49	150·77	347	1067·69	114	350·77	555
	TOTALS - - -			4,001	–	8,498	2123·97	–	–	–	–	3	88	21·99	457	114·22	33	8·25	544	135·97	5,648	1411·65	2,007	501·62	8,780

(PUNISHMENTS.)

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS. Death.	PUNISHMENTS. Penal Servitude. Number.	PUNISHMENTS. Penal Servitude. Years.	PUNISHMENTS. Discharged with Disgrace.	PUNISHMENTS. Corporal. Number. (a)	PUNISHMENTS. Corporal. Lashes. (a)	PUNISHMENTS. Imprisonment. Number.	PUNISHMENTS. Imprisonment. Days.	PUNISHMENTS. Confined in Cells on Board.	PUNISHMENTS. Disrated.	PUNISHMENTS. Deprived of Good Conduct Badges.	PUNISHMENTS. Reduced to 2d Class for Conduct.	PUNISHMENTS. Discharged as Objectionable.	PUNISHMENTS. Minor.	Average per 1,000 Men and Boys, per Year. Flogged.	Average per 1,000 Men and Boys, per Year. Lashes Inflicted.	Average per 1,000 Men and Boys, per Year. Imprisoned.	Average per 1,000 Men and Boys, per Year. Days' Imprisonment.	Average per 1,000 Men and Boys, per Year. Discharged with Disgrace.	Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys. Number.	(a) Including Boys. Lashes.	REMARKS.	Total Desertions.
82	Ajax	S.	–	–	–	–	1	12	29	1,086	25	2	5	33	10	1,017	2·17	26·09	63·04	2360·87	–	39	8·5	–	1	12	At Kingstown	8
83	Blenheim	S. C. M.	– –	– –	– –	– –	– 1	– 48	34 1	1,017 365	54 –	3 –	12 –	39 –	5 1	739 –	2·27	109·09	79·54	3140·91	–	53	12·5	–	–	–	At Milford	–
84	Colossus	S.	–	–	–	–	–	–	8	300	8	1	5	17	9	502	–	–	16·50	618·56	–	18	3·7	21	–	–	At Weymouth	5
85	Cornwallis	S.	–	–	–	–	–	–	29	993	38	3	9	31	1	1,024	–	–	105·84	3624·08	–	46	16·8	–	–	–	At Hull	28
86	Dauntless	S.	–	–	–	–	–	–	14	477	–	–	6	18	2	338	–	–	52·24	1779·85	–	17	6·3	6	–	–	At Southampton	7
87	Edinburgh	S.	–	–	–	–	–	–	21	786	–	8	11	27	2	926	–	–	84·00	3204·40	–	21	8·4	5	–	–	At Leith	–
88	Hawke	S.	–	–	–	–	–	–	2	120	9	1	5	14	2	266	–	–	4·58	274·70	–	14	3·2	2	–	–	At Queenstown	–
89	Hogue	S. C. M.	– –	– –	– –	– 2	– 2	– 96	18 2	752 1,094	37 –	2 –	15 –	31 –	2 –	736 –	6·90	331·03	68·97	6365·52	6·90	42	14·5	18	–	–	At Greenock	35
90	Majestic	S. C. M.	– –	– –	– –	– 1	4 4	144 156	76 4	1,679 1,277	17 –	3 –	8 –	80 –	2 –	997 –	21·80	817·44	217·98	8054·49	2·72	56	15·2	7	4	144	At Liverpool	60
91	Pembroke	S. C. M.	– –	– –	– –	– –	– –	– –	27 2	735 365	29 –	4 –	6 –	43 –	1 –	933 –	–	–	71·61	2716·05	–	39	9·6	5	–	–	At Harwich	9
92	Russell	S.	–	–	–	1	–	–	4	170	14	–	5	20	10	503	–	–	12·31	523·08	3·08	23	7·1	–	–	–	At Falmouth	–
	TOTALS		–	–	–	4	12	456	271	11,216	231	27	87	353	47	7,981	3·00	113·97	67·73	2803·30	1·00	368	9·2	–	5	156		–

(OFFENCES.)

DRILL SHIPS at Home Ports.

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1863). From	To	Average Number of Men and Boys borne.	CONVICTIONS. Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences. Offences of the 1st Degree. Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Offences of the 2d Degree. Uncleanness.	Desertion. Number Convicted of.	Proportion per 1,000 per Year.	Insubordination. Number Convicted of	Proportion per 1,000 per Year.	Theft. Number Convicted of	Proportion per 1,000 per Year.	Offences of the 3d Degree. Drunkenness. Number Convicted of	Proportion per 1,000 per Year.	Absence without, or over, Leave. Number Convicted of	Proportion per 1,000 per Year.	Minor. Number Convicted of	Proportion per 1,000 per Year.	Total Number of Crimes and Offences.
93	Active - - - -	7 May -	31 Dec. -	28	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
94	Brilliant - - - -	1 Jan. -	31 Dec. -	23	S.	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	2
95	Castor - - - -	1 Jan. -	31 Dec. -	53	S.	42	–	–	–	–	–	–	–	–	5	–	–	–	4	–	28	–	6	–	43
96	Dædalus - - - -	1 Jan. -	31 Dec. -	23	S.	4	–	–	–	–	–	–	–	–	–	–	–	–	3	–	2	–	–	–	5
97	Eagle - - - -	1 Jan. -	31 Dec. -	23	S.	10	–	–	–	–	–	–	–	–	1	–	–	–	–	–	8	–	1	–	10
98	President - - - -	1 Jan. -	31 Dec. -	41	S.	6	–	–	–	–	–	–	–	–	–	–	–	–	2	–	5	–	1	–	8
99	Trincomalee - - -	1 Jan. -	31 Dec. -	25	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
100	Winchester - - -	1 Jan. -	31 Dec. -	22	S.	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
	TOTALS - - -			*238	–	65	285·09	–	–	–	–	–	–	–	6	26·31	–	–	9	39·47	46	201·75	8	35·09	69

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* The total mean force borne on an average, in this Division of the Fleet, for the whole year, was 228, and for that number the proportions are cast.

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
				Number.	Years.		Number. (a)	Lashes. (a)	Number of.	Days.																		
93	Active	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	At Sunderland	–
94	Brilliant	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	At Dundee	–
95	Castor	S.	–	–	–	–	–	–	–	–	–	–	–	1	–	42	–	–	–	–	–	1	–	–	–	–	At North Shields	2
96	Dædalus	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	–	–	At Bristol	–
97	Eagle	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	10	–	–	–	–	–	–	–	–	–	–	At Liverpool	–
98	President	S.	–	–	–	–	–	–	–	–	–	–	1	1	1	5	–	–	–	–	–	1	–	–	–	–	West India Docks, London.	–
99	Trincomalee	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	At Sunderland	1
100	Winchester	S.	–	–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	–	–	–	–	–	–	–	–	At Aberdeen	–
	TOTALS		–	–	–	–	–	–	–	–	–	–	2	2	1	64	–	–	–	–	–	3	1·3	2	–	–		3

Station, "MEDITERRANEAN."

Distinguishing No. of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
101	Alacrity	1 Jan.	3 Aug.	83	S.	88	1893·62	–	–	–	–	–	–	–	3	63·83	–	–	12	276·60	24	510·64	55	1170·21	94
					C. M.	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
102	Caradoc	1 Jan.	31 Dec.	64	S.	128	2000·00	–	–	–	–	–	1	15·62	23	359·37	–	–	16	250·00	64	1000·00	31	484·37	135
103	Chanticleer	1 Jan.	31 Dec.	167	S.	286	1712·57	–	–	–	–	–	–	–	31	185·63	1	5·99	16	95·81	85	508·98	163	976·05	296
104	Cockatrice	1 Jan.	31 Dec.	31	S.	97	3129·03	–	–	–	–	–	–	–	6	193·55	–	–	29	935·48	53	1709·68	13	419·35	101
105 14	Cossack	1 July	31 Dec.	235	S.	475	4159·07	–	–	–	–	–	–	–	19	159·72	1	6·94	40	347·22	45	944·44	372	2756·94	477
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
106 75	Edgar	1 Jan.	31 March	808	S.	450	–	–	–	–	–	–	–	–	33	–	1	–	135	–	121	–	223	–	513
107 147	Firebrand	1 Jan.	9 April	161	S.	116	–	–	–	–	–	–	–	–	5	–	–	–	10	–	63	–	43	–	121
108	Firefly	1 Jan.	31 Dec.	80	S.	185	2312·50	–	–	–	–	–	1	12·50	8	100·00	–	–	30	375·50	77	962·50	77	962·50	193
109	Foxhound	1 Jan.	31 Dec.	88	S.	108	1301·20	–	–	–	–	–	2	24·10	7	84·34	3	36·14	24	289·16	45	542·17	30	361·45	111
110	Gannet. (Paid off in January. No return in Office.)																								
111 29	Gibraltar	1 Oct.	31 Dec.	826	S.	1,314	–	–	–	–	–	–	–	–	20	–	5	–	26	–	333	–	930	–	1,314
112	Hibernia	1 Jan.	31 Dec.	199	S.	143	718·59	–	–	–	–	–	–	–	15	75·38	1	5·03	16	80·40	30	150·75	86	432·16	148
113 33	Hydra	10 Nov.	31 Dec.	93	S.	44	–	–	–	–	–	–	–	–	2	–	–	–	4	–	19	–	20	–	45
114	Icarus	1 Jan.	31 Dec.	112	S.	321	2866·07	–	–	–	–	–	–	–	21	187·50	2	17·86	38	339·29	67	598·21	204	1821·43	332
115	Liffey	1 Jan.	31 Dec.	492	S.	1,100	2239·84	–	–	–	–	–	–	–	67	136·18	6	12·20	174	353·66	267	542·68	636	1292·68	1,150
					C. M.	2	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
116	London	1 Jan.	5 Feb.	800	S.	96	–	–	–	–	–	–	–	–	8	–	–	–	4	–	13	–	72	–	97
117	Magicienne	1 Jan.	31 Dec.	213	S.	452	2126·76	–	–	–	–	–	1	4·69	32	154·93	1	4·69	50	239·44	121	568·08	249	1169·01	454
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	2
118	Malacca	1 Jan.	31 Dec.	198	S.	419	2121·21	–	–	–	–	–	–	–	36	186·87	–	–	47	237·37	114	575·76	242	1222·22	439
					C. M.*	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
119	Marlborough	1 Jan.	31 Dec.	1,044	S.	2,286	2191·57	–	–	–	–	1	1	0·96	97	93·87	–	0·96	383	366·86	706	676·25	1,174	1124·52	2,362
					C. M.	2	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	2
120	Mars	1 Jan.	7 Feb.	617	S.	32	–	–	–	–	–	–	–	–	6	–	1	–	1	–	1	–	23	–	32
					C. M.	1	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1

* Tried in England.

(PUNISHMENTS.)

Distinguishing No. of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprison-ment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																		
101	Alacrity	S.	–	–	–	–	2	72	4	102	–	–	2	3	–	79	42·55	1531·91	85·11	2170·28	–	12	14·5	67	1	36	- - - -	–
		C. M.	–	–	–	–	–	–	–	–	–	1	1															
102	Caradoc	S.	–	–	–	1	3	108	–	–	–	–	1	2	1	120	46·87	1687·50	–	–	15·62	6	9·4	102	1	36	- - - -	–
103	Chanticleer	S.	–	–	–	–	2	96	1	28	–	–	1	8	–	282	11·98	574·85	5·99	167·66	–	18	10·8	89	2	96	- - - -	–
104	Cockatrice	S.	–	–	–	–	1	36	–	–	10	1	–	1	1	87	32·26	1161·29	–	–	–	7	22·6	60	–	–	- - - -	–
105 14	Cossack	S.	–	–	–	–	1	36	4	114	2	2	1	12	–	465	6·94	250·00	27·78	791·67	–	31	13·2	85	1	36	Proportions include entries at No. 14.	1
		C. M.	–	1	5																							
106 75	Edgar	S.	–	–	–	1	4	144	9	224	3	3	6	5	4	425	–	–	–	–	–	88	10·9	–	1	24	Proportions cast at No. 75.	–
107 147	Firebrand	S.	–	–	–	–	1	24	8	224	1	3	5	10	10	93	–	–	–	–	–	25	15·5	31	1	24	- - - -	–
108	Firefly	S.	–	–	–	–	2	54	2	56	–	4	5	7	–	176	25·00	675·00	25·00	700·00	–	15	18·7	94	–	–	- - - -	1
109	Foxhound	S	–	–	–	–	4	156	4	90	–	1	5	6	–	97	48·19	1879·52	48·19	1084·34	–	16	19·3	94	4	156	- - - -	2
110	Gannet.																											
111 29	Gibraltar	S.	–	–	–	1	4	102	1	28	14	1	–	11	–	1,302	–	–	–	–	–	125	15·3	33	3	54	- - - -	6
112	Hibernia	S.	–	–	–	1	–	–	4	99	15	1	1	5	–	120	–	–	20·10	497·49	5·03	5	2·5	–	–	–	- - - -	–
113 33	Hydra	S.	–	–	–	–	–	–	1	28	1	–	–	–	–	42	–	–	–	–	–	6	6·5	2	–	–	- - - -	–
114	Icarus	S.	–	–	–	–	2	72	8	196	3	6	4	15	1	300	17·86	642·86	71·43	1750·00	–	32	28·6	165	1	36	- - - -	–
115	Liffey	S.	–	–	–	–	13	359	15	335	34	13	13	49	8	1,019	26·42	729·67	30·49	680·89	–	93	18·9	80	4	91	- - - -	1
		C. M.	–	2	20																							
116	London	S.	–	–	–	–	–	–	4	140	4	3	4	4	–	77	–	–	–	–	–	Not stated.						–
117	Magicienne	S.	–	–	–	–	2	72	11	392	–	5	15	22	2	421	9·39	383·03	56·34	2694·84	–	26	12·2	98	1	36	- - - -	1
		C. M.	–	–	–	–	–	–	1	182	–	1	–	1														
118	Malacca	S.	–	–	–	–	4	156	6	161	11	2	4	18	–	395	20·20	787·88	35·35	2656·57	–	39	19·7	123	2	60	- - - -	–
		C. M.	–	–	–	–	–	–	1	365	–	–	–	–	1													
119	Marlborough	S.	–	–	–	–	5	180	14	420	55	14	52	76	2	2,205	5·75	149·42	15·33	1188·70	0·96	67	6·4	61	3	96	- - - -	4
		C. M.	–	–	–	1	1	48	2	821	–	–	1	1														
120	Mars	S.	–	–	–	–	1	23	3	84	3	–	1	–	1	24	–	–	–	–	–	117	19·0	23	1	23	- - - -	–
		C. M.	–	–	–	–	–	–	1	365																		

(OFFENCES.)

Station, "MEDITERRANEAN"—*continued.*

Distinguishing No. of Ship.	NAME OF SHIP.	For what Period (1863).		Avrage Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
121	Medina	1 Jan.	9 Nov.	64	S.	151	2745·45	–	–	–	–	–	–	–	23	418·18	3	54·55	27	490·91	55	1000·00	56	1018·18	164
122	Meeanee	1 Jan.	31 Dec.	573	S.	1,122	1961·61	–	–	–	–	–	–	1·75	61	108·20	5	8·73	79	137·87	157	274·00	844	1472·95	1,146
					C. M.	2	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	2
123 43 158	Orlando	1 July	31 Dec.	547	S.	621	2407·00	–	–	–	–	–	–	5·52	46	169·43	9	20·26	147	372·01	193	1077·35	232	762·43	677
124	Pelican	1 Jan.	31 Dec.	155	S.	362	2333·33	–	–	–	–	–	–	–	29	187·10	4	25·81	53	341·93	93	600·00	184	1187·10	363
125	Phœbe	1 Jan.	31 Dec.	492	S.	1,633	3323·17	–	–	–	–	2	–	–	62	128·05	6	14·23	112	227·64	491	997·97	971	1973·58	1644
					C. M.	2	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	2
126	Procris	1 Jan.	31 Dec.	24	S.	23	958·33	–	–	–	–	–	–	–	4	166·67	–	–	4	166·67	9	375·00	6	250·00	23
127	Psyche	1 Jan.	31 Dec.	50	S.	45	900·00	–	–	–	–	–	–	–	–	120·00	–	–	8	160·00	21	420·00	11	220·00	46
128	Queen	1 Jan.	15 Dec.	730	S.	1,438	2061·60	–	–	–	–	–	–	–	129	186·25	4	5·73	328	469·91	409	585·96	608	871·06	1,478
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
129 49	Racoon	1 Oct.	31 Dec.	260	S.	139	–	–	–	–	–	–	–	–	8	–	3	–	23	–	37	–	80	–	151
130 79	Revenge (Flag Ship)	1 April	31 Dec.	726	S.	1,743	3213·11	–	–	–	–	–	1	12·30	107	198·09	11	16·39	161	255·46	325	658·47	1,201	2163·93	1,806
131 55	Scylla. (Paid off in January. No return in Office).	–	–	–	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
132 165	Shannon	1 Jan.	31 Mar.	456	S.	262	2739·42	–	–	–	–	–	–	15·59	48	329·62	4	20·04	38	293·99	120	812·92	66	1371·94	276
133	St. George	1 Jan.	31 Dec.	756	S.	1,333	1767·20	–	–	–	–	–	3	3·97	113	149·47	5	7·94	144	190·48	440	582·01	665	879·63	1,370
					C. M.	3	–	–	–	–	–	2	–	–	–	–	1	–	–	–	–	–	–	–	3
134	Surprise	1 Jan.	31 Dec.	78	S.	169	2166·67	–	–	–	–	–	–	–	14	179·49	1	12·82	29	371·79	43	551·28	84	1076·92	171
135	Trafalgar	1 Jan.	31 Dec.	737	S.	1,687	2291·72	–	–	–	–	–	3	4·07	137	188·60	6	8·14	151	206·24	743	1008·14	659	894·17	1,699
					C. M.	2	–	–	–	–	–	–	–	–	2	–	–	–	1	–	–	–	–	–	3
136	Trident	1 Jan.	31 Dec.	95	S.	266	2810·53	–	–	–	–	–	1	10·53	16	168·42	1	10·53	12	136·84	37	389·47	200	2105·26	267
					C. M.	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
137	Wanderer	1 Jan.	31 Dec.	78	S.	49	628·21	–	–	–	–	–	–	–	10	128·21	–	–	27	346·15	15	192·31	6	76·92	58
138	Weser	1 Jan.	31 Dec.	54	S.	85	1574·07	–	–	–	–	–	–	–	5	92·59	–	–	15	277·78	40	740·74	25	462·96	85
	TOTALS			2,181*	–	19,288	2353·58	–	–	2	–	5	15	1·81	1,266	152·51	88	10·60	2,417	291·17	5,476	659·68	10,591	1275·87	19,860

* The average mean force in this Division of the Fleet, for the whole year, was 8,301, and on that number the proportions are cast.

Distinguishing No. of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
				Penal Servitude.			Corporal.		Imprisonment.																			
			Death.	Number.	Years.	Discharged with Disgrace.	Number. (a)	Lashes. (a)	Number.	Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
121	Medina	S.	–	–	–	–	–	–	6	161	–	1	2	1	5	142	–	–	109·09	2927·27	–	9	14·1	8	–	–	- - - -	–
122	Meeanee	S.	–	–	–	–	21	582	4	92	12	5	11	66	7	1,009	36·65	1015·71	8·72	797·56	–	75	13·1	86	12	300	- - - -	–
		C. M.	–	1	Life	–	–	–	1	365																		
123 43 158	Orlando	S.	–	–	–	–	7	144	6	98	31	10	17	26	–	571	18·42	486·19	40·52	1377·53	–	83	15·2	42	5	84	Proportions include the entries at Nos. 43 and 158.	–
124	Pelican	S.	–	–	–	–	4	144	2	56	–	3	6	14	2	343	25·81	929·08	12·90	361·29	–	41	26·5	140	2	72	- - - -	–
125	Phœbe	S.	–	–	–	–	17	594	10	280	52	7	19	56	3	1,508	36·59	1304·88	24·39	2794·72	4·07	85	17·3	96	13	438	- - - -	4
		C. M.	–	–	–	2	1	48	2	1,095																		
126	Procris	S.	–	–	–	–	–	–	2	49	–	1	7	6	1	14	–	–	83·08	2041·67	–	6	25·0	41	–	–	- - - -	–
127	Psyche	S.	–	–	–	–	–	–	–	–	–	–	2	3	–	43	–	–	–	–	–	3	6·0	36	–	–	- - - -	–
128	Queen	S.	–	–	–	4	9	360	17	497	89	15	27	60	3	1,269	14·33	584·53	25·79	1757·88	7·16	208	28·5	76	1	24	- - - -	–
		C. M.	–	–	–	1	1	48	1	730																		
129 49	Racoon	S.	–	–	–	–	2	84	4	91	–	3	3	4	–	130	–	–	–	–	–	22	8·5	24	2	84	Proportions cast at No. 49.	–
130 79	Revenge	S.	–	–	–	–	9	336	11	384	52	14	17	59	4	1,680	16·39	622·95	30·05	1736·34	–	187	25·8	68	7	264	Proportions include entries at No. 79.	2
131 55	Scylla.																											
132 165	Shannon	S.	–	–	–	2	4	147	2	56	14	1	4	8	–	250	35·63	1316·26	35·63	1699·33	4·45	88	19·3	16	–	–	Proportions cast at No. 165.	–
133	St. George	S.	–	–	–	–	12	432	13	406	61	15	28	55	–	1,244	19·84	761·90	21·16	2951·06	3·97	134	17·7	31	6	192	- - - -	–
		C. M.	–	–	–	3	3	144	3	1,825																		
134	Surprise	S.	–	–	–	–	1	48	7	169	–	3	4	7	–	151	12·82	615·38	89·74	2166·67	–	12	15·4	90	–	–	- - - -	–
135	Trafalgar	S.	–	–	–	1	5	168	13	426	39	16	8	75	–	1,612	6·78	227·95	18·99	824·96	1·36	78	10·6	60	4	132	- - - -	–
		C. M.	–	–	–	–	–	–	1	182	–	1	–	2														
136	Trident	S.	–	–	–	–	3	36	9	174	1	2	6	7	–	251	31·58	378·95	94·74	1831·58	–	10	10·5	59	3	36	- - - -	–
		C. M.	–	–	–	–	–	–	–	–	–	–	–	–	–	1												
137	Wanderer	S.	–	–	–	–	–	–	2	56	–	1	3	5	–	45	–	–	25·64	717·95	–	5	6·4	48 in9m	–	–	- - - -	2
138	Weser	S.	–	–	–	–	–	–	–	–	6	–	2	6	–	79	–	–	–	–	–	9	16·7	25 in9m	–	–	- - - -	–
	TOTALS	- - -	–	3 1	25 and Life	18	151	5,053	220	11,646	513	159	290	716	56	18,071	18·19	608·72	26·50	1402·96	2·17	1,783	15·7	–	81	2,430		–

(OFFENCES.)

Station, " NORTH AMERICA AND WEST INDIES."

Distinguishing No. of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
139	Aboukir (Guard Ship at Jamaica)	1 Jan.	31 Dec.	134	S.	298	2223·88	–	–	–	–	–	–	–	28	208 96	4	29·85	35	261·19	190	1417 91	50	373·13	307
140	Ariadne	1 Jan.	31 Dec.	438	S. C. M.	1,001 1	2287·67 –	– –	– –	– –	– –	– –	3 1	9·13 –	62 –	141·55 –	2 –	4·57 –	51 –	116·44 –	389 –	888·13 –	508 –	1159·82 –	1,015 1
141	Barracouta	1 Jan.	31 Dec.	156	S.	476	3050·13	–	–	–	–	1	–	–	36	230 77	2	12·82	41	262·82	201	1288·46	201	1288·46	482
142 } 8 }	Buzzard	1 Apr.	31 Dec.	152	S.	223	2060·15	–	–	–	–	–	–	–	21	180·45	4	30·08	29	240·60	23	278·20	151	1390·98	228
143 } 9 }	Cadmus	1 Jan.	31 Mar.	220	S.	82	–	–	–	–	–	–	–	–	16	–	–	–	4	–	31	–	33	–	84
144	Challenger	1 Jan.	31 Dec.	247	S.	925	3744·94	–	–	–	–	–	3	12·15	82	331·98	1	4·05	83	336·03	208	842· 1	551	2230·77	928
145	Cygnet	1 Jan.	31 Dec.	55	S.	113	2054·55	–	–	–	–	–	–	–	17	309·09	3	54·55	25	454·55	37	672·73	33	600·00	115
146	Desperate	1 Jan.	7 Nov.	144	S.	266	1900·00	–	–	–	–	–	–	–	40	285·71	–	–	10	71·43	73	521·43	147	1050·00	270
147 } 107 }	Firebrand (No return in office)																								
148	Galatea	1 Jan.	31 Dec.	457	S. C. M.	676 1	1481·40 –	– –	– –	– –	– –	– –	2 –	4·38 –	103 –	225·38 –	3 1	8·75 –	95 –	207·88 –	199 –	435·45 –	285 –	623·63 –	687 1
149	Greyhound	1 Jan.	31 Dec.	165	S.	408	2472·73	–	–	–	–	1	–	–	48	290·91	6	36·36	22	133·33	202	1224·24	132	800·00	411
150	Immortalité	1 Jan.	31 Dec.	467	S. C. M.	630 5	1359·74 –	– –	– –	– –	– –	– –	– 5	10·71 –	116 –	248·39 –	– –	– –	49 –	104·92 –	312 –	668·09 –	156 –	334·05 –	633 5
151	Jason	1 Jan.	31 Dec.	220	S. C. M.	830 1	3777·27 –	– –	– –	– –	– –	– –	– –	– –	51 1	236·36 –	4 –	18·18 –	67 1	309·09 –	218 –	990·91 –	492 –	2236·36 –	832 2
152	Landrail	1 Jan.	31 Dec.	54	S. C. M.	181 2	3388·89 –	– –	– –	– –	– –	– –	3 2	92·59 –	36 –	666·66 –	2 –	37·04 –	20 –	370·37 –	40 –	740·74 –	84 –	1555·56 –	185 2
153	Lily	1 Jan.	31 Dec.	86	S. C. M.	246 1	2872·09 –	– –	– –	– –	– –	– –	– –	– –	37 –	430·23 –	– 1	11·63 –	6 –	69·77 –	65 –	755·81 –	138 –	1604·65 –	246 1
154	Medea	1 Jan.	31 Dec.	126	S.	228	1809·52	–	–	–	–	–	–	–	20	158·73	2	15·87	55	436·51	84	666·67	84	666·67	245
155	Melpomene	1 Jan.	20 Mar.	474	S.	125	–	–	–	–	–	–	–	–	9	–	–	–	24	–	14	–	80	–	127
156	Nile (Flag Ship)	1 Jan.	15 Dec.	763	S. C. M.	1350 1	1770·64 –	– –	– –	– –	– –	3 –	16 –	20·97 –	142 1	187·42 –	5 –	6·55 –	139 –	182·18 –	602 –	788 99 –	466 –	610·75 –	1,373 1

(PUNISHMENTS.)

Distinguishing No. of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
				Penal Servitude.			Corporal.		Imprisonment.																			
			Death.	Number.	Years.	Discharged with Disgrace.	Number. (a)	Lashes. (a)	Number.	Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
139	Aboukir	S.	–	–	–	1	2	60	6	168	6	3	1	10	–	275	14·93	447·76	44·78	1253·73	7·46	15	11·2	–	2	60	- - -	–
140	Ariadne	S.	–	–	–	–	3	82	9	462	9	12	15	34	–	947	6·85	187·21	22·83	1484·02	–	70	16·0	118	–	–	- - -	17
		C.M.	–	–	–	–	–	–	1	182	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	- - -	–
141	Barracouta	S.	–	–	–	–	1	24	2	56	–	6	5	9	1	459	6·41	153·85	12·82	358·97	–	14	9·0	136	1	24	- - -	5
142 } 8 }	Buzzard	S.	–	–	–	–	3	108	–	–	2	3	9	9	–	208	22·56	812·03	7·53	158·65	–	15	9·9	48	2	60	Proportions include entries at No. 8.	7
143 } 9 }	Cadmus	S.	–	–	–	–	1	36	–	–	2	2	1	–	–	77	–	–	–	–	–	36	16·4	36	–	–	- - -	1
144	Challenger	S.	–	–	–	–	2	48	1	14	8	2	3	5	–	909	8·10	194·33	4·05	56·68	–	30	12·1	54 in9m.	2	48	- - -	–
145	Cygnet	S.	–	–	–	–	1	34	3	84	4	2	3	5	–	97	18·18	618·18	54·55	1527·27	–	10	18·2	228	–	–	- - -	1
146	Desperate	S.	–	–	–	–	3	96	–	–	4	2	4	6	–	254	21·43	685·71	–	–	–	16	11·4	89	–	–	- - -	–
147 } 107 }	Firebrand																											
148	Galatea	S.	–	–	–	–	7	240	4	74	20	8	13	62	2	616	15·32	525·16	10·95	960·61	2·19	57	12·5	120	3	108	- - -	–
		C.M.	–	–	–	1	–	–	1	365	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	- - -	–
149	Greyhound	S.	–	–	–	–	4	167	8	250	4	4	9	12	–	379	24·24	1012·12	48·48	1515·15	–	11	6·7	100	–	–	- - -	2
150	Immortalité	S.	–	–	–	–	3	120	2	56	11	9	13	19	–	593	8·56	359·74	12·85	5186·30	–	69	14·8	112	1	36	- - -	25
		C.M.	–	1	4	–	1	48	4	1,866	–	–	1	1	2	–	–	–	–	–	–	–	–	–	1	48	- - -	–
151	Jason	S.	–	–	–	–	1	36	9	219	–	–	1	9	–	819	9·09	381·82	45·45	2654·55	–	20	9·1	76½	–	–	- - -	9
		C.M.	–	–	–	–	1	48	1	365	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	- - -	–
152	Landrail	S.	–	–	–	–	4	138	4	106	–	1	1	16	–	165	92·59	3222·22	111·11	12092·59	–	21	38·9	241	2	54	- - -	5
		C.M.	–	–	–	–	1	36	2	547	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	- - -	–
153	Lily	S.	–	–	–	–	3	126	–	–	–	5	8	17	–	220	34·88	1465·12	11·63	4244·19	–	9	10·5	194	1	36	- - -	10
		C.M.	–	–	–	–	–	–	1	365	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	- - -	–
154	Medea	S.	–	–	–	–	2	60	–	–	–	2	11	10	1	211	15·87	476·19	–	–	–	5	4·0	133	2	60	- - -	–
155	Melpomene	S.	–	–	–	–	1	48	–	–	17	1	–	6	19	110	–	–	–	–	–	60	12·7	32	1	48	- - -	1
156	Nile	S.	–	–	–	3	7	324	22	748	18	10	15	44	4	1,295	9·17	424·64	28·88	980·34	3·93	73	9·6	70	2	84	- - -	27
		C.M.	–	1	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	- - -	–

Station, "NORTH AMERICA AND WEST INDIES"—*continued*.

Distinguishing No. of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and boys Borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of.	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
157	Nimble	1 Jan.	31 Dec.	59	S. C. M.	153 1	2610·17 –	– –	– –	– –	– –	– –	– 1	16·95 –	30 –	508·47 –	– –	– –	11 –	186·44 –	84 –	1423·73 –	37 –	627·12 –	162 1
158 43 123	Orlando	1 Jan.	31 Mar.	534	S.	181	–	–	–	–	–	–	–	–	28	–	2	–	21	–	71	–	70	–	192
159	Peterel	1 Jan.	31 Dec.	120	S. C. M.	493 2	4125·00 –	– –	– –	– –	– –	2 –	1 1	16·67 –	57 –	475·00 –	2 1	25·00 –	86 –	716·67 –	97 –	808·33 –	266 –	2216·67 –	511 2
160	Phaeton	1 Jan.	31 Dec.	419	S.	1,067	2546·54	–	–	–	–	2	6	14·32	116	276·85	4	9·55	155	369·93	547	1305·49	274	653·94	1,104
161	Plover	1 Jan.	31 Dec.	54	S.	195	3611·11	–	–	–	–	–	3	55·56	21	388·89	2	37·04	9	166·67	52	962·96	112	2074·07	199
162	Pylades	1 Jan.	31 Dec.	227	S.	619	2726·87	–	–	–	–	1	1	4·41	68	299·56	3	13·22	51	224·67	44	193·83	463	2039·65	631
163	Rinaldo	1 Jan.	31 Dec.	151	S.	392	2596·03	–	–	–	–	–	2	13·25	26	172·12	–	–	59	390·73	45	298·01	265	1754·97	397
164	Rosario	1 Jan.	31 Dec.	104	S.	277	2663·46	–	–	–	–	–	2	19·23	31	298·08	4	38·46	53	509·61	69	663·46	148	1423·08	307
165 132	Shannon	1 Apr.	31 Dec.	448	S. C. M.	966 2	2739·42 –	– –	– –	– –	– –	– –	7 –	15·59 –	98 2	329·62 –	5 –	20·04 –	94 –	293·99 –	245 –	812·92 –	550 –	1371·94 –	999 2
166	Spiteful	1 Jan.	14 Mar.	160	S.	21	–	–	–	–	–	–	–	–	2	–	–	–	6	–	1	–	12	–	21
167	Steady	1 Jan.	31 Dec.	59	S.	180	3050·85	–	–	–	–	–	–	–	18	305·08	–	–	25	423·73	60	1016·95	77	1305·08	180
168	Styx	1 Jan.	31 Dec.	142	S.	423	2978·87	–	–	–	–	–	2	14·08	25	176·05	2	14·08	37	260·56	298	2098·59	68	478·87	432
169	Terror (Guard Ship at Bermuda)	1 Jan.	31 Dec.	232	S.	244	1051·72	–	–	–	–	–	–	–	24	103·45	3	12·93	45	193·97	144	620·69	45	193·97	261
170	Vesuvius	1 Jan.	31 Dec.	148	S.	717	4844·59	–	–	–	–	–	2	13·51	44	297·30	4	27·03	55	371·62	207	1398·65	418	2824·32	730
171 69	Virago	1 July	31 Dec.	143	S.	230	3690·14	–	–	–	–	–	3	28·17	33	387·32	2	21·13	17	253·52	83	1683·10	96	1373·24	234
	TOTALS			7,358*	–	14,233	2345·58	–	–	–	–	10	66	10·88	1,489	245·39	74	12·20	1,480	243·90	4,935	813·28	6,492	1069·87	14,546

* The average mean force in this division in the Fleet, for the whole year, was 6,068, and for that number the proportions are cast.

Distinguishing No. of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
				Penal Servitude.			Corporal.		Imprisonment.																			
			Death.	Number.	Years.	Discharged with Disgrace.	Number. (a)	Lashes (a).	Number.	Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
157	Nimble	S.	–	–	–	–	–	–	1	21	–	1	1	6	–	147	–	–	33·90	3440·68	–	9	15·3	112	–	–	- - -	–
		C. M.	–	–	–	–	–	–	1	182	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	- - -	–
158 43 123	Orlando	S.	–	–	–	–	–	–	–	–	10	1	7	3	–	169	–	–	–	–	–	70	13·1	26	–	–	Proportions cast at No. 123.	1
159	Peterel	S.	–	–	–	–	8	312	2	70	3	17	15	28	1	432	83·33	3300·00	30·30	6666·67	8·33	25	20·8	112	2	60	- - -	7
		C. M.	–	–	–	1	2	84	2	730	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	- - -	–
160	Phaeton	S.	–	–	–	1	6	168	14	483	8	9	16	35	4	979	14·32	409·55	33·41	1152·74	2·39	42	10·0	97	1	21	- - -	13
161	Plover	S.	–	–	–	–	4	146	7	266	–	1	1	4	1	178	74·07	2703·70	129·63	4925·93	–	18	33·3	212	–	–	- - -	–
162	Pylades	S.	–	–	–	1	5	208	1	28	9	5	3	23	–	575	22·03	916·30	4·41	123·35	4·41	23	10·1	122 in9m.	2	72	- - -	–
163	Rinaldo	S.	–	–	–	–	7	276	–	–	–	3	5	11	1	374	46·35	1827·81	–	–	–	19	12·6	83	1	36	- - -	–
164	Rosario	S.	–	–	–	–	3	108	–	–	2	1	10	11	–	262	28·34	1038·46	–	–	–	14	13·5	166	2	72	- - -	10
165 132	Shannon	S.	–	–	–	–	11	408	13	616	40	5	11	22	4	913	35·63	1316·26	35·63	1699·33	4·45	82	18·3	76	2	48	Proportions include the entries at No. 132.	23
		C. M.	–	–	–	–	1	36	1	91	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
166	Spiteful	S.	–	–	–	–	1	36	–	–	1	–	2	1	–	19	–	–	–	–	–	23	14·4	22	–	–	- - -	1
167	Steady	S.	–	–	–	–	–	–	1	28	1	1	5	10	–	165	–	–	16·95	474·58	–	8	13·6	202	–	–	- - -	–
168	Styx	S.	–	–	–	–	2	36	–	–	6	2	4	9	–	405	14·08	253·52	–	–	–	17	12·0	54 in9m.	1	12	- - -	–
169	Terror	S.	–	–	–	–	2	72	13	266	–	1	9	19	1	220	8·62	310·34	56·03	1146·55	–	26	11·2	–	1	36	- - -	–
170	Vesuvius	S.	–	–	–	–	5	129	5	230	9	2	11	17	4	695	33·78	871·62	33·78	1154·05	–	20	13·5	139	4	93	- - -	6
171 69	Virago	S.	–	–	–	–	4	120	6	161	–	2	1	15	2	209	42·25	1183·10	56·34	1429·58	–	27	18·9	54	2	48	Proportions include entries at No. 69.	7
	TOTALS		–	2	8	8	112	4,018	147	9,099	194	124	214	492	48	13,376	18·46	662·16	24·23	1499·51	1·32	954	12·8	–	38	1,167	- - -	–

(OFFENCES.)

Station, "EAST INDIES and CHINA."

Distinguishing Number of Ship.	NAME of SHIP.	For what Period (1863). From	For what Period (1863). To	Average Number of Men and Boys borne.	CONVICTIONS. Whether Summarily or by Court-Martial.	CONVICTIONS. Number of	CONVICTIONS. Average per 1,000 borne, per Year.	Offences of the 1st Degree. Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Offences of the 2d Degree. Uncleanness.	Desertion. Number Convicted of	Desertion. Proportion per 1,000 per Year.	Insubordination. Number Convicted of	Insubordination. Proportion per 1,000 per Year.	Theft. Number Convicted of	Theft. Proportion per 1,000 per Year.	Offences of the 3d Degree. Drunkenness Number Convicted of	Drunkenness Proportion per 1,000 per Year.	Absence without, or over, Leave. Number Convicted of	Absence without, or over, Leave. Proportion per 1,000 per Year.	Minor. Number Convicted of	Minor. Proportion per 1,000 per Year.	Total Number of Crimes and Offences.
172	Acorn (Hospital Ship at Shanghae. No returns in office).																								
173	Algerine	1 Jan.	31 Dec.	36	S. C. M.	65 1	1833·33 –	– –	– –	– –	– –	– –	– –	– –	8 1	250·00 –	1 –	27·78 –	17 1	500·00 –	21 –	583·33 –	23 –	638·89 –	70 2
174	Argus	1 Jan.	31 Dec.	140	S.	140	1000·00	–	–	–	–	–	–	–	10	71·43	1	7·14	41	292·86	80	571·43	24	171·43	156
175	Barrosa	1 Jan.	31 Dec.	234	S.	1,023	4371·79	–	–	–	–	–	–	–	46	196·58	5	21·37	103	440·17	151	645·30	733	3132·48	1,038
176	Beagle	1 Jan.	13 Jan.	56	S.	16	–	–	–	–	–	–	–	–	3	–	–	–	4	–	9	–	1	–	17
177	Bouncer	1 Jan.	31 Dec.	33	S.	94	2848·48	–	–	–	–	–	1	30·30	10	303·03	1	30·30	23	696·97	32	969·70	32	969·70	99
178	Bustard	1 Jan.	31 Dec.	36	S.	32	888·89	–	–	–	–	–	–	–	4	111·11	–	–	8	222·22	15	416·67	9	250·00	36
179	Centaur	1 Jan.	31 Dec.	158	S.	296	1873·42	–	–	–	–	–	–	–	27	170·89	–	–	86	544·30	144	911·39	81	512·66	338
180	Clown	1 Jan.	31 Dec.	34	S.	49	1441·18	–	–	–	–	–	–	–	8	235·29	–	–	20	588·24	21	617·65	8	235·29	57
181	Cockchafer	1 Jan.	31 Dec.	32	S.	83	2593·75	–	–	–	–	–	–	–	8	250·00	–	–	14	437·50	47	1468·75	22	687·50	91
182	Coromandel	1 Jan.	31 Dec.	37	S. C. M.	85 1	2324·32 –	– –	– –	– –	– –	– –	– 1	27·03 –	16 1	459·46 –	– –	– –	9 –	243·24 –	33 –	891·89 –	28 –	756·76 –	86 2
183	Cormorant	1 Jan.	31 Dec.	76	S. C. M.	259 2	3434·21 –	– –	– –	– –	– –	– –	– –	– –	39 2	539·47 –	– –	– –	29 –	381·58 –	43 –	565·78 –	152 –	2000·00 –	263 2
184	Coquette	1 Jan.	31 Dec.	77	S.	169	2194·81	–	–	–	–	–	–	–	10	129·87	1	12·99	27	350·65	42	545·45	97	1259·75	177
185	Encounter	1 Jan.	31 Dec.	162	S. C. M.	262 4	1641·98 –	– –	– –	– –	– –	– –	– 3	18·52 –	29 –	179·01 –	– 1	6·17 –	26 –	160·49 –	120 –	740·74 –	90 –	555·56 –	265 4
186	Euryalus (Flag Ship)	1 Jan.	31 Dec.	520	S. C. M.	1,379 4	2659·62 –	– –	– –	– –	– –	– –	2 1	5·77 –	98 2	192·31 –	8 –	15·38 –	138 –	265·38 –	327 1	630·77 –	851 –	1636·54 –	1,424 4
187	Firm. (No returns in office).																								
188	Flamer	1 Jan.	31 Dec.	32	S.	116	3615·00	–	–	–	–	–	–	–	5	156·25	1	31·25	13	406·25	55	1718·75	49	1531·25	123
189	Grasshopper	1 Jan.	31 Dec.	34	S.	96	2823·53	–	–	–	–	–	–	–	18	529·41	–	–	28	823·53	36	1058·82	23	676·47	105

Distinguishing Number of Ship.	NAME of SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude. Number.	Penal Servitude. Years.	Discharged with Disgrace.	Corporal. Number. (a)	Corporal. Lashes. (a)	Imprisonment. Number.	Imprisonment. Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
172	Acorn	S.																										
173	Algerine	S.	–	–	–	–	–	–	–	–	–	1	1	2	–	61	27·78	1333·33	27·78	3361·11	–	14	38·9	75 in 9 m.	1	24	- - -	–
		C. M.	–	–	–	–	1	48	1	121	–	–	–	–	1													
174	Argus	S.	–	–	–	–	–	–	–	–	11	2	6	9	–	130	–	–	–	– –	–	24	17·1	15 in 9 m.	–	–	- - -	–
175	Barrosa	S.	–	–	–	–	8	250	4	56	7	11	3	30	–	983	34·19	1068·38	17·09	239·32	–	36	15·4	100	4	120	- - -	–
176	Beagle	S.	–	–	–	–	–	–	–	–	–	–	1	2	–	15	–	–	–	– –	–	6	10·7	–	–	–	- - -	–
177	Bouncer	S.	–	–	–	–	1	36	1	84	–	–	1	1	–	88	30·30	1090·91	30·30	2545·45	–	6	18·2	12 in 9 m.	–	–	- - -	–
178	Bustard	S.	–	–	–	–	–	–	–	–	–	1	2	2	–	28	–	–	–	– –	–	4	11·1	61 in 9 m.	–	–	- - -	–
179	Centaur	S.	–	–	–	–	6	192	–	–	11	2	10	4	–	269	37·97	1215·19	–	– –	–	22	13·9	35 in 9 m.	–	–	- - -	–
180	Clown	S.	–	–	–	–	–	–	5	118	1	1	1	9	–	43	–	–	147·06	3470·51	–	9	26·5	25 in 9 m.	–	–	- - -	–
181	Cockchafer	S.	–	–	–	–	1	36	–	–	–	–	1	3	–	65	31·25	1125·00	–	– –	–	7	21·9	72	–	–	- - -	–
182	Coromandel	S.	–	–	–	–	1	36	–	–	–	1	2	3	–	76	54·06	2270·27	27·03	19729·73	27·03	8	21·6	21 in 9 m.	–	–	- - -	–
		C. M.	–	–	–	1	1	48	1	730																		
183	Cormorant	S.	–	–	–	1	1	36	3	52	–	4	5	16	–	244	39·47	1736·84	52·63	5486·84	13·16	13	17·1	42 in 9 m.	1	36	- - -	–
		C. M.	–	–	–	–	2	96	1	365	–	1	–	1	1													
184	Coquette	S.	–	–	–	–	2	72	6	140	–	1	1	6	1	155	25·97	935·06	77·92	1818·18	–	8	10·4	69 in 9 m.	1	24	- - -	–
185	Encounter	S.	–	–	–	–	1	48	–	–	7	1	17	19	–	229	24·69	1037·04	6·17	2253·09	–	19	11·7	14 in 9 m.	2	72	- - -	–
		C. M.	–	–	–	–	3	120	1	365	–	–	1	4														
186	Euryalus	S.	–	–	–	–	9	318	4	91	45	10	22	37	–	1,299	25·00	980·77	13·46	2982·69	3·85	77	14·8	12 in 9 m.	7	252	- - -	–
		C. M.	–	–	–	2	4	192	3	1,460	–	–	–	–	–	1												
187	Firm	S.																										
188	Flamer	S.	–	–	–	–	–	–	3	90	–	–	2	4	–	112	–	–	93·75	2812·50	–	7	21·9	29 in 9 m.	–	–	- - -	–
189	Grasshopper	S.	–	–	–	–	1	30	2	49	1	5	2	7	–	79	29·41	882·35	58·82	1441·18	–	4	11·8	21 in 9 m.	–	–	- - -	–

(OFFENCES.)

Station, "EAST INDIES and CHINA"—*continued.*

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
190	Hardy	1 Jan.	31 Dec.	31	S.	22	709·68	–	–	–	–	–	–	–	3	96·77	–	–	5	161·29	12	387·10	5	161·29	25
191	Haughty	1 Jan.	31 Dec.	37	S.	81	2189·19	–	–	–	–	–	–	–	14	378·38	–	–	25	675·68	26	702·70	20	540·54	85
192	Havoc	1 Jan.	31 Dec.	32	S. C. M.	139 3	4437·50 –	– –	– –	– –	– –	– 2	– –	– –	18 1	593·75 –	– –	– –	20 1	656·25 –	28 –	875·00 –	75 –	2343·75 –	141 4
193	Hesper	1 Jan.	31 Dec.	59	S.	137	2322·03	–	–	–	–	–	–	–	24	406·78	–	–	27	457·63	65	1101·69	31	525·42	147
194	Hornet	1 Jan.	31 Dec.	143	S.	328	2293·71	–	–	–	–	–	–	–	43	300·70	3	20·98	31	216·78	84	587·41	175	1223·78	336
195	Imperieuse	1 Jan.	21 Mar.	475	S.	171	–	–	–	–	–	–	–	–	18	–	2	–	16	–	17	–	119	–	172
196	Insolent	1 Jan.	31 Dec.	37	S.	23	621·62	–	–	–	–	–	–	–	6	162·16	1	27·03	3	81·08	6	162·16	8	216·22	24
197	Janus	1 Jan.	31 Dec.	34	S.	139	4088·24	–	–	–	–	–	–	–	21	617·65	–	–	42	1235·29	39	1146·06	48	1411·76	150
198	Kestrel	1 Jan.	31 Dec.	35	S. C. M.	114 1	3285·71 –	– –	– –	– –	– –	– –	– –	– –	15 1	457·14 –	1 –	28·57 –	22 1	657·14 –	29 –	828·57 –	56 –	1600·00 –	123 2
199	Leopard	1 Jan.	31 Dec.	299	S.	683	2284·28	–	–	–	–	2	–	–	64	214·05	7	23·41	35	117·06	14	46·82	578	1933·11	700
200	Leven	1 Jan.	31 Dec.	39	S.	160	4102·56	–	–	–	–	–	–	–	15	384·62	1	25·64	25	641·03	74	1897·44	53	1358·97	168
201	Manilla	1 Jan.	31 Dec.	41	S.	92	2243·90	–	–	–	–	–	4	97·56	3	73·07	2	48·78	22	536·59	34	829·27	32	780·49	97
202	Odin	1 Jan.	28 Aug.	263	S. C. M.*	396 1	2294·80 –	– –	– –	– –	– –	– –	– –	– –	63 1	396·94 –	5 –	28·90 –	44 –	254·34 –	132 –	763·01 –	159 –	919·08 –	403 1
203	Osprey	3 Jan.	31 Dec.	75	S. C. M.	263 1	3520·00 –	– –	– –	– –	– –	– –	2 –	26·67 –	12 –	160·00 –	– 1	13·33 –	18 –	240·00 –	57 –	760·00 –	180 –	2400·00 –	269 1
204	Pantaloon	15 Jan.	31 Dec.	108	S.	370	3557·69	1	–	–	–	1	5	48·08	55	528·85	3	28·85	45	432·75	72	692·31	191	1836·54	373
205	Pearl	1 Jan.	31 Dec.	216	S.	312	1444·44	–	–	–	–	–	–	–	37	171·29	–	–	43	199·07	92	425·93	142	657·41	314
206	Perseus	1 Jan.	31 Dec.	149	S.	418	2805·37	–	–	–	–	–	1	6·71	38	255·03	7	46·98	70	469·80	125	838·92	188	1261·74	429

* Tried in England.

(PUNISHMENTS.)

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS. Death.	Penal Servitude. Number.	Penal Servitude. Years.	Discharged with Disgrace.	Corporal. Number. (a)	Corporal. Lashes. (a)	Imprisonment. Number.	Imprisonment. Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Average per 1,000 Men and Boys, per Year. Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.	Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys. Number.	(a) Including Boys. Lashes.	REMARKS.	Total Desertions.
190	Hardy	S.	–	–	–	–	–	–	1	28	–	1	1	4	–	17	–	–	32·26	903·22	–	2	6·5	15 in 9 m.	–	–	– – –	–
191	Haughty	S.	–	–	–	–	–	–	3	84	1	2	2	8	–	69	–	–	81·08	2270·27	–	8	21·6	122 in 9 m.	–	–	– – –	–
192	Havoc	S.	–	–	–	–	3	108	1	30	–	3	4	3	–	125	187·50	7875·00	93·75	23750·00	62·50	8	25·0	10 in 9 m.	–	–	– – –	–
		C. M.	–	–	–	2	3	144	2	730	–	–	–	3	–	1												
193	Hesper	S.	–	–	–	–	2	48	3	48	5	6	1	8	–	115	33·90	813·56	50·85	813·56	–	12	20·3	52 in 9 m.	1	24	– – –	–
194	Hornet	S.	–	–	–	–	2	72	5	128	–	1	7	13	–	321	13·99	503·50	34·97	895·10	–	27	18·9	88 in 6 m.	1	36	– – –	–
195	Imperieuse	S.	–	–	–	–	2	78	1	30	14	–	3	11	–	156	–	–	–	– –	–	79	16·6	66	–	–	– – –	–
196	Insolent	S.	–	–	–	–	–	–	–	–	2	2	–	2	–	21	–	–	–	– –	–	3	8·1	7 in 9 m.	–	–	– – –	–
197	Janus	S.	–	–	–	–	1	36	6	122	–	1	4	6	–	127	29·41	1058·82	176·47	3588·24	–	7	20·6	51 in 9 m.	–	–	– – –	–
198	Kestrel	S.	–	–	–	–	1	36	–	–	–	3	5	11	–	102	57·14	2400·00	28·57	10428·57	–	7	20·0	– in 9 m.	1	36	– – –	–
		C. M.	–	–	–	–	1	48	1	365	–	–	–	–	1													
199	Leopard	S.	–	–	–	2	2	84	1	14	4	10	11	19	4	657	6·69	280·94	3·34	46·82	6·69	20	6·7	108	2	84	– – –	4
200	Leven	S.	–	–	–	–	1	48	2	57	1	1	1	5	–	154	25·64	1230·77	51·28	1461·54	–	9	23·1	53 in 9 m.	–	–	– – –	–
201	Manilla	S.	–	–	–	–	3	108	5	236	–	2	–	7	–	68	73·17	2634·15	121·95	5756·10	–	13	31·7	66 in 9 m.	1	36	– – –	–
202	Odin	S.	–	–	–	3	8	282	1	28	39	6	1	20	–	340	52·02	1907·51	5·78	161·85	17·34	94	35·7	Not stated.	5	168	– – –	–
		C. M.	–	–	–	–	1	48	–	–	–	–	–	–	1													
203	Osprey	S.	–	–	–	–	4	144	–	–	–	1	–	8	–	256	53·33	1920·00	13·33	2426·67	13·33	9	12·0	152	4	144	– – –	6
		C. M.	–	–	–	1	–	–	1	182																		
204	Pantaloon	S.	–	–	–	–	4	180	2	42	–	6	10	21	1	339	38·46	1730·77	19·23	403·84	–	19	17·6	125 in 9 m.	1	36	– – –	–
205	Pearl	S.	–	–	–	1	2	72	–	–	20	1	3	11	–	294	9·26	333·33	–	– –	4·63	55	25·5	42 in 9 m.	–	–	– – –	8
206	Perseus	S.	–	–	–	–	6	192	8	161	–	8	9	22	3	380	40·27	1288·59	53·69	1080·54	–	23	15·4	106	2	48	– – –	3

Station, "EAST INDIES and CHINA."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-Commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
207	Princess Charlotte (Guard Ship at Hong Kong).	1 Jan.	31 Dec.	216	S.	139	643·52	–	–	–	–	–	1	4·63	7	32·41	1	4·63	37	171·30	81	375·00	24	111·11	151
208	Racehorse	1 Jan.	31 Dec.	85	S.	241	2835·29	–	–	–	–	–	2	23·53	21	247·06	1	11·76	29	341·18	51	600·00	143	1682·35	247
209	Rattler	1 Jan.	31 Dec.	143	S.	352	2461·54	–	–	–	–	–	1	6·99	50	349·65	–	–	86	601·40	10	69·93	209	1461·54	356
210	Renard	1 Jan.	3 July	72	S.	79	2194·44	–	–	–	–	–	–	–	13	361·11	–	–	19	527·78	10	277·78	38	1055·56	80
211	Rifleman	1 Jan.	31 Dec.	71	S.	46	647·89	–	–	–	–	–	–	–	7	98·59	1	14·08	20	281·69	16	225·35	8	112·68	52
212	Ringdove	1 Jan.	31 Dec.	70	S. C. M.	290 14	4342·86 –	– 14	– –	– –	– –	– –	– –	– –	32 –	* 657·14 –	– –	– –	15 –	214·29 –	53 –	757·14 –	194 –	2771·43 –	294 14
213	Sans Pareil	1 Jan.	11 June	348	S.	101	–	–	–	–	–	–	–	–	16	–	1	–	4	–	38	–	44	–	103
214	Scout	1 Jan.	31 Dec.	213	S.	834	3915·49	–	–	–	–	–	–	–	49	230·05	–	–	24	112·68	385	1807·51	376	1765·26	834
214a 55 131	Scylla	1 Oct.	31 Dec.	307	S.	376	–	–	–	–	–	–	2	–	17	–	1	–	19	–	108	–	238	–	385
215	Severn	1 Jan.	31 Dec.	448	S.	859	1917·41	–	–	–	–	–	1	2·23	108	241·07	2	4·46	44	98·21	186	415·18	518	1156·25	859
216	Slaney	1 Jan.	31 Dec.	38	S.	15	394·74	–	–	–	–	–	–	–	2	52·63	–	–	5	131·58	3	78·95	6	157·89	16
217	Snake	1 Jan.	3 June	49	S.	6	–	–	–	–	–	–	–	–	3	–	–	–	2	–	3	–	–	–	8
218	Snap (paid off in June. No returns in office).	1 Jan.	11 June	–	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
219	Sphinx	1 Jan.	9 July	164	S.	74	876·59	–	–	–	–	–	–	–	7	82·35	–	–	21	247·06	15	176·47	42	494·12	85
220	Staunch	1 Jan.	31 Dec.	33	S.	107	3242·42	–	–	–	–	–	–	–	9	272·73	2	60·61	17	515·15	32	969·70	52	1575·76	112
221	Swallow	1 Jan.	31 Dec.	78	S.	67	858·97	–	–	–	–	–	–	–	12	153·85	–	–	25	320·51	19	243·59	16	205·13	72
222 274	Tartar	1 Oct.	31 Dec.	237	S.	94	–	–	–	–	–	–	–	–	16	–	1	–	9	–	49	–	19	–	94
223 68	Vigilant	1 July	31 Dec.	83	S.	210	4450·70	–	–	–	–	–	–	–	26	450·70	–	14·08	23	450·70	28	788·73	143	2915·49	220
224	Vulcan (Troop Ship)	1 Jan.	31 Dec.	142	S.	240	1690·14	–	–	–	–	–	1	7·04	18	126·76	3	21·13	96	676·06	96	676·06	53	373·24	267
225	Weazel	1 Jan.	31 Dec.	27	S.	38	1407·41	–	–	–	–	–	–	–	5	185·19	–	–	6	222·22	17	629·63	10	370·37	38
		TOTALS		6,594*	–	12,212	2308·51	15	–	–	–	5	28	5·29	1,215	229·68	65	12·29	1,583	299·24	3,283	620·60	6,416	1212·85	12,610

* The average mean force in this division of the fleet for the whole year was 5,290, and for that number the proportions are cast.

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.							
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.															Number.	Lashes.		
207	Princess Charlotte	S.	–	–	–	–	–	–	8	286	3	2	3	12	–	120	–	–	37·04	1324·07	–	16	7·4	–	–	–	- - -	–
208	Racehorse	S.	–	–	–	–	3	144	2	49	–	4	5	19	–	220	35·29	1694·11	23·53	576·47	–	16	18·8	73 in 9 m.	–	–	- - -	–
209	Rattler	S.	–	–	–	–	–	–	1	62	1	8	4	20	–	330	–	–	6·99	433·57	–	21	14·7	17 in 9 m.	–	–	- - -	–
210	Renard	S.	–	–	–	–	–	–	–	–	–	2	–	3	–	74	–	–	–	–	–	8	11·1	Not stated.	–	–	- - -	–
211	Rifleman	S.	–	–	–	–	3	96	6	168	–	1	4	11	–	34	42·25	1352·11	84·51	2366·20	–	11	15·5	Not stated.	1	36	- - -	–
212	Ringdove	S.	–	–	–	–	3	132	1	28	–	4	4	15	–	263	200·00	9428·57	57·14	16042·86	–	5	7·1	45 in 9 m.	–	–	Proportion of insubordination includes the 14 cases of mutiny.	–
		C. M.	–	–	–	–	11	528	3	1,095	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	144		
213	Sans Pareil	S.	–	–	–	–	–	–	–	–	–	1	6	7	–	90	–	–	–	–	–	8	2·3	Not stated.	–	–	- - -	–
214	Scout	S.	–	–	–	1	3	90	2	49	2	4	6	6	–	815	14·08	422·54	9·38	230·05	4·69	26	12·2	86 in 9 m.	–	–	- - -	–
214a 55 131	Scylla	S.	–	–	–	–	1	48	–	–	–	–	5	7	–	363	–	–	–	–	–	43	14·0	55	1	48	- - -	6
215	Severn	S.	–	–	–	–	5	180	10	314	–	2	4	30	–	821	11·16	401·79	22·32	700·89	–	42	9·4	115 in 9 m.	2	36	- - -	–
216	Slaney	S.	–	–	–	–	–	–	1	24	–	2	1	2	–	12	–	–	26·32	631·58	–	5	13·2	–	–	–	- - -	–
217	Snake	S.	–	–	–	–	–	–	–	–	–	3	1	–	–	3	–	–	–	–	–	–	Nil.	46	–	–	- - -	–
218	Snap	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	- - -	–
219	Sphinx	S.	–	–	–	–	–	–	–	–	1	2	4	5	–	69	–	–	–	–	–	12	7·3	Not stated.	–	–	- - -	–
220	Staunch	S.	–	–	–	–	–	–	–	–	–	1	1	5	–	105	–	–	–	–	–	6	18·2	20 in 9 m.	–	–	- - -	–
221	Swallow	S.	–	–	–	–	1	24	–	–	–	1	–	3	–	66	12·82	307·69	–	–	–	9	11·5	Surveying.	–	–	- - -	–
222 274	Tartar	S.	–	–	–	–	1	48	–	–	–	1	2	12	1	79	–	–	–	–	–	42	17·7	46	1	48	Proportions cast at No. 274.	–
223 68	Vigilant	S.	–	–	–	–	3	108	6	87	–	5	–	6	–	196	56·34	1859·15	98·59	1619·72	–	6	7·2	82	3	108	Proportions include entries at No. 68.	–
224	Vulcan	S.	–	–	–	–	1	36	5	132	2	1	1	7	–	227	7·04	253·52	35·21	929·58	–	10	7·0	7 in 6 m.	1	36	- - -	–
225	Weazel	S.	–	–	–	–	–	–	–	–	–	–	–	1	–	38	–	–	–	–	–	4	14·8	101 in 9 m.	–	–	- - -	–
	TOTALS	- - -	–	–	–	14	123	4,720	123	8,300	178	139	191	512	14	11,344	23·25	892·25	23·25	1569·00	2·65	949	14·3	–	46	1,596		–

(OFFENCES.)

Station, "CAPE OF GOOD HOPE."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
					Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
								Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To										Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
226	Ariel - - - - - -	1 Jan. -	31 Dec. -	73	S.	143	1958·90	–	–	–	–	–	–	–	21	287·67	–	–	31	424·66	10	136·99	87	1191·78	149
227	Gorgon - - - - - -	1 Jan. -	31 Dec. -	158	S.	527	3335·44	–	–	–	–	–	–	–	53	335·44	1	6·33	43	272·15	138	873·42	310	1962·03	545
228	Narcissus (flag ship) - -	1 Jan. -	31 Dec. -	500	S.	550	1100·00	–	–	–	–	–	2	4·00	85	170·00	4	8·00	61	122·00	36	72·00	367	734·00	555
229	Orestes - - - - - -	1 Jan. -	31 Dec. -	225	S.	431	1915·56	–	–	–	–	–	–	–	48	213·33	–	–	38	168·89	152	675·56	198	880·00	436
230	Penguin - - - - - -	1 Jan. -	31 Dec. -	59	S.	161	2728·81	–	–	–	–	2	–	–	17	288·14	1	16·95	34	576·27	39	661·01	79	1338·98	172
231	Rapid - - - - - -	1 Jan. -	31 Dec. -	107	S.	125	1168·22	–	–	–	–	–	–	–	27	252·34	3	28·04	13	121·50	31	289·72	53	495·33	127
232	Seringapatam (Guard Ship at the Cape).	1 Jan. -	31 Dec. -	123	S.	106	869·92	–	–	–	–	–	–	8·13	6	48·78	–	–	19	154·47	71	577·24	14	113·82	110
					C. M.	1	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1
233 65	Valorous - - - - - -	1 July -	31 Dec. -	198	S.	278	3401·52	–	–	–	–	–	5	37·88	26	257·58	1	7·58	38	386·36	63	856·06	162	2007·57	295
	TOTALS - - -			1,443*	–	2,322	1726·39	–	–	–	–	2	8	5·95	283	210·41	10	7·43	277	205·95	540	401·49	1,270	944·24	2,390

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* The average number borne for the whole year was 1,345, and for that number the proportions are cast.

(PUNISHMENTS.)

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprison-ment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number	Lashes.		
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																		
226	Ariel - - - - -	S.	–	–	–	–	1	36	4	98	–	6	10	14	2	116	13·70	493·15	54·79	1342·47	–	19	26·0	Not stated.	–	–	- - -	1
227	Gorgon - - - - -	S.	–	–	–	–	3	96	2	24	–	5	13	10	–	507	18·99	607·59	12·66	151·90	–	12	7·6	150 in 9 mos.	1	24	- - -	–
228	Narcissus - - - -	S.	–	–	–	–	6	228	18	476	3	1	9	26	–	500	12·00	456·00	36·00	952·00	–	59	11·8	71	5	180	- - -	2
229	Orestes - - - - -	S.	–	–	–	–	1	30	–	–	1	4	9	10	–	407	4·44	133·33	–	–	–	12	5·3	175	–	–	- - -	5
230	Penguin - - - - -	S.	–	–	–	–	5	163	–	–	–	1	3	12	–	153	84·75	2762·71	–	–	–	15	25·4	154	3	108	- - -	–
231	Rapid - - - - -	S.	–	–	–	–	1	36	–	–	1	2	10	14	–	114	9·35	336·45	–	–	–	21	19·6	257	–	–	- - -	1
232	Seringapatam - - - -	S.	–	–	–	–	4	72	1	28	2	2	1	5	–	97	40·65	634·15	16·26	1707·32	–	6	4·9	–	1	36	- - -	–
		C. M.	–	–	–	–	1	6	1	182	–	–	–	–	1													
233 } 65 }	Valorous - - - - -	S.	–	–	–	–	2	48	8	258	2	3	5	18	–	247	15·15	363·64	60·61	1954·55	–	32	16·2	52	2	48	Proportions include entries at No. 65.	–
	TOTALS - - -		–	–	–	–	24	715	34	1,066	9	24	60	109	3	2,141	17·84	531·60	25·28	792·57	–	176	12·2	–	12	396		–

(OFFENCES.)

STATION, "WEST COAST OF AFRICA."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period. (1863.)		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
234	Antelope - - - - - -	1 Jan. -	31 Dec. -	78	S.	59	756·41	–	–	–	–	–	–	–	16	205·13	–	–	9	115·38	4	51·28	33	423·08	62
235	Archer - - - - - -	1 April	31 Dec. -	169	S.	553	4354·33	–	–	–	–	–	–	–	37	291·34	3	23·62	14	110·24	35	275·59	481	3787·40	570
236	Bloodhound - - - - -	1 Jan. -	15 Sept. -	42	S.	60	2000·00	–	–	–	–	–	–	–	10	333·33	2	66·67	11	366·67	–	–	41	1366·67	64
237	Brisk - - - - - -	1 Jan. -	22 Aug. -	184	S.	132	1118·64	–	–	–	–	–	–	–	24	203·39	1	8·47	17	144·07	2	16·94	88	745·76	132
238	Dart - - - - - -	1 Jan. -	31 Dec. -	60	S.	170	2833·33	–	–	–	–	–	–	–	20	333·33	–	–	8	133·33	4	66·67	138	2300·00	170
239	Dromedary - - - - -	1 Jan. -	31 Dec. -	48	S.	49	1020·83	–	–	–	–	–	–	–	13	270·83	–	–	5	104·17	16	333·33	15	312·50	49
240	Espoir - - - - - -	1 Jan. -	31 Dec. -	56	S.	138	2464·29	–	–	–	–	–	1	17·86	22	392·86	1	17·86	18	321·43	11	196·43	90	1607·14	143
241	Griffon - - - - - -	1 Jan. -	31 Dec. -	55	S.	14	254·54	–	–	–	–	–	–	–	7	127·27	–	–	3	54·55	–	–	4	72·73	14
242	Handy (No Returns in Office).																								
243	Investigator - - - - -	1 Jan. -	31 Dec. -	24	S.	29	1208·33	–	–	–	–	–	–	–	9	375·00	–	–	6	250·00	4	166·67	10	416·67	29
244	Isis (Coal Depôt) - - -	17 Feb. -	31 Dec. -	25	S.	3	136·36	–	–	–	–	–	–	–	1	45·45	–	–	1	45·45	1	45·45	–	–	3
245	Jaseur - - - - - -	8 April	31 Dec. -	64	S.	172	3659·57	–	–	–	–	–	–	–	13	276·60	–	–	6	127·66	9	191·49	145	3085·11	173
246	Lee (Tender to "Rattlesnake." Included in Returns of "Rattlesnake").																								
247	Mæander (Guard Ship at Ascension).	1 Jan. -	31 Dec. -	237	S.	67	282·70	–	–	–	–	–	–	–	19	80·17	–	–	11	46·41	3	12·66	37	156·12	70

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																		
234	Antelope	S.	-	-	-	-	3	144	-	-	2	1	5	7	-	45	38·46	1846·15	-	-	-	18	23·1	112	3	144	-	-
235	Archer	S.	-	-	-	-	4	120	-	-	4	2	7	7	-	530	31·50	944·88	-	-	-	12	7·1	102 in 9 months.	1	24	-	-
236	Bloodhound	S.	-	-	-	-	1	24	-	-	-	2	6	4	-	54	33·33	800·00	-	-	-	6	14·3	107 in 5½ months.	-	-	-	-
237	Brisk	S.	-	-	-	-	-	-	1	14	5	2	3	6	-	121	-	-	8·47	118·64	-	32	17·4	110 in 5 months.	-	-	-	-
238	Dart	S.	-	-	-	-	7	282	6	154	1	-	2	8	-	152	116·67	4700·00	100·00	2566·67	-	19	31·7	200	1	36	-	-
239	Dromedary	S.	-	-	-	-	-	-	1	42	-	-	3	3	-	42	-	-	20·83	875·00	-	4	8·3	215	-	-	-	-
240	Espoir	S.	-	-	-	-	2	72	2	56	3	-	5	15	-	115	35·72	1285·71	35·72	1000·00	-	12	21·4	169 in 9 months.	-	-	-	-
241	Griffon	S.	-	-	-	-	-	-	-	-	-	-	1	-	-	13	-	-	-	-	-	3	5·5	196 in 9 months.	-	-	-	-
242	Handy	S.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
243	Investigator	S.	-	-	-	-	1	48	-	-	1	3	-	4	1	23	41·67	2000·00	-	-	-	2	8·3	45 and in Lagoons.	-	-	-	-
244	Isis	S.	-	-	-	-	-	-	2	56	-	-	-	-	-	1	-	-	90·91	2545·45	-	-	-	None.	-	-	-	-
245	Jaseur	S.	-	-	-	-	6	234	-	-	-	2	2	8	-	155	127·66	4978·72	-	-	-	9	14·1	Not stated.	4	138	-	-
246	Lee	S.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
247	Mæander	S.	-	-	-	-	-	-	3	63	5	3	1	6	-	53	-	-	12·66	265·82	-	17	7·2	None.	-	-	-	-

STATION, "WEST COAST OF AFRICA."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period. (1863.)		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-Commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
248	Mullet	1 Jan.	31 Dec.	50	S.	184	3680·00	–	–	–	–	–	–	–	26	520·00	–	–	8	160·00	12	240·00	138	2760·00	184
249 46	Pandora	1 Apr.	31 Dec.	63	S.	111	2265·31	–	–	–	–	–	–	–	10	204·08	–	–	8	163·27	1	20·41	92	1877·55	111
250	Philomel	1 Jan.	31 Dec.	62	S.	89	1435·48	–	–	–	–	–	–	–	17	274·19	1	16·13	13	209·68	6	96·77	54	870·97	91
251	Ranger	1 Jan.	10 Nov.	56	S.	93	1937·50	–	–	–	–	–	–	–	12	250·00	–	–	2	41·67	2	41·67	77	1604·17	93
252	Rattlesnake (Flag Ship)	1 Jan.	31 Dec.	234	S.	304	1316·24	–	–	–	–	–	–	–	29	132·48	6	34·19	52	222·22	24	102·56	202	863·25	313
					C. M.	4	–	–	–	2	–	–	–	–	2	–	2	–	–	–	–	–	–	–	6
253 58	Snipe	1 Oct.	31 Dec.	54	S.	18	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	15	–	18
254	Sparrow	23 Mar.	31 Dec.	56	S.	95	2159·09	–	–	–	–	–	–	–	11	250·00	1	22·73	13	295·45	–	–	70	1590·91	95
255 50 59	Speedwell (No Returns in Office).																								
256	Torch	1 Jan.	31 Dec.	58	S.	106	1827·59	–	–	–	–	–	–	–	16	275·86	1	17·24	11	189·66	–	–	79	1362·07	107
257	Vindictive (Store Ship, in the Bights).	1 Jan.	31 Dec.	47	S.	44	–	–	–	–	–	–	–	–	4	–	–	–	20	–	1	–	20	–	45
258	Wrangler	1 Jan.	21 Sept.	60	S.	106	2465·12	–	–	–	–	–	–	–	9	209·30	1	23·26	6	139·53	30	697·67	62	1441·86	108
259 72	Wye (Store Ship)	1 Oct.	31 Dec.	51	S.	32	–	–	–	–	–	–	–	–	4	–	–	–	1	–	–	–	27	–	32
260	Zebra	1 Jan.	31 Dec.	142	S.	243	1718·31	–	–	–	–	–	–	–	20	147·89	1	7·04	29	204·23	5	35·21	193	1359·15	248
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
		TOTALS		*1,975	–	2,876	1686·84	–	–	2	–	–	1	0·58	355	208·21	20	11·73	272	159·52	170	99·71	2,111	1238·12	2,931

* The average mean force borne in this division of the Fleet, for the whole year, was 1,705, and for that number the proportions are cast.

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.							
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.															Number.	Lashes.		
248	Mullet	S.	-	-	-	-	1	48	-	-	1	3	6	5	-	172	20·00	960·00	-	- -	-	5	10·0	287	1	48	- - - -	-
249 46	Pandora	S.	-	-	-	-	1	36	-	-	-	3	2	5	-	102	20·41	734·69	-	- -	-	5	10·2	123 in 6 months.	1	36	Proportions include the entries at No. 46.	-
250	Philomel	S.	-	-	-	-	3	132	8	121	-	1	2	4	-	69	48·39	2129·03	129·03	1951·61	-	19	30·6	161	2	84	- - - -	-
251	Ranger	S.	-	-	-	-	-	-	1	28	-	2	-	4	-	88	-	-	20·83	583·33	-	10	17·9	167	-	-	- - - -	-
252	Rattlesnake	S.	-	-	-	-	2	42	7	210	-	9	9	18	-	212	17·09	589·74	38·46	7136·75	4·27	17	7·3	158	1	18	- - - -	-
		C. M.	-	2	22	1	2	96	2	1,460	-	-	-	1	-	1												
253 58	Snipe	S.	-	-	-	-	-	-	-	-	-	-	1	-	-	17	-	-	-	- -	-	3	5·6	72	-	-	- - - -	-
254	Sparrow	S.	-	-	-	-	2	72	1	14	-	-	2	6	-	86	45·46	1636·37	22·73	318·18	-	7	12·5	148	1	36	- - - -	-
255 50 59	Speedwell	S.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	—	-	-	-	-	-	-	- - - -	-
256	Torch	S.	-	-	-	-	3	84	-	-	5	2	2	8	-	96	51·72	1448·28	-	- -	-	12	20·7	217 in 9 months.	2	48	- - - -	-
257	Vindictive	S.	-	-	-	-	3	132	-	-	-	-	2	8	-	31	-	-	-	- -	-	4	8·5	-	1	48	Proportions not cast, the Returns being incomplete.	-
258	Wrangler	S.	-	-	-	1	-	-	4	84	-	1	3	4	-	93	-	-	93·02	1953·49	23·26	13	21·7	90 in 6 months.	-	-	- - - -	-
259 72	Wye	S.	-	-	-	-	-	-	-	-	-	1	3	1	-	28	-	-	-	- -	-	6	11·8	41	-	-	Proportions cast at No. 72.	-
260	Zebra	S.	-	-	-	-	1	24	3	84	-	1	5	14	-	228	14·08	507·04	28·16	5732·39	7·04	13	9·2	201	1	24	- - - -	-
		C. M.	-	-	-	1	1	48	1	730																		
	TOTALS - - -		-	2	22	3	43	1,638	42	3,116	27	38	72	146	1	2,527	25·22	960·70	24·63	1827·57	1·76	248	12·6	-	19	684		

(OFFENCES.)

Station, "PACIFIC."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period. (1863.)		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
261	Bacchante - - - - -	1 Jan. -	31 Dec. -	473	S.	660	1395·35	–	–	–	–	–	1	2·11	126	266·38	5	10·57	150	317·12	110	232·56	283	598·31	675
262	Cameleon - - - - -	1 Jan. -	31 Dec. -	127	S.	150	1283·47	–	–	–	–	–	–	102·36	29	228·35	–	102·36	45	354·33	38	299·21	48	377·95	160
					C. M.	13	–	–	–	–	–	–	13	–	–	–	13, of a boat.	–	–	–	–	–	–	–	26
263	Charybdis - - - -	1 Jan. -	31 Dec. -	214	S.	402	1878·50	–	–	–	–	–	–	–	17	79·44	3	14·02	37	172·89	110	514·02	235	1098·13	402
264	Clio - - - - - -	1 Jan. -	29 Aug. -	253	S.	446	2670·67	–	–	–	–	–	–	–	45	269·46	2	11·98	28	167·66	130	778·44	241	1443·11	446
265	Devastation - - - -	1 Jan. -	31 Dec. -	128	S.	223	1742·19	–	–	–	–	–	3	23·44	18	140·73	4	31·25	17	132·81	94	734·38	90	703·12	226
266	Forward - - - - -	1 Jan. -	31 Dec. -	27	S.	10	370·37	–	–	–	–	–	–	–	1	37·04	–	–	4	148·15	6	222·22	3	111·11	14
267	Grappler - - - - -	1 Jan. -	31 Dec. -	32	S.	50	1562·50	–	–	–	–	–	1	31·25	13	406·25	–	–	20	625·00	26	812·50	2	62·50	62
268	Hecate - - - - -	1 Jan. -	31 Dec. -	98	S.	66	673·47	–	–	–	–	–	–	–	23	234·69	–	–	4	40·82	20	204·08	20	204·08	67
268*b* 39	Leander - - - - -	1 July -	31 Dec. -	531	S.	481	1883·33	–	–	–	–	–	5	13·89	38	119·44	8	27·78	82	255·55	131	652·78	242	886·11	506
269	Mutine - - - - -	1 Jan. -	31 Dec. -	148	S.	267	1804·05	–	–	–	–	–	1	6·76	33	222·97	1	6·76	33	222·97	68	459·46	133	898·65	269
270	Naïad (Store Ship at Callao) -	1 Jan. -	31 Dec. -	15	S.	9	600·00	–	–	–	–	–	–	–	–	–	–	–	3	200·00	3	200·00	3	200·00	9
271	Nereus (Store Ship, at Valparaiso).	1 Jan. -	31 Dec. -	35	S.	39	1114·29	–	–	–	–	–	–	–	–	–	–	–	8	228·57	35	1000·00	–	–	43
272 56	Shearwater - - - -	1 April	31 Dec. -	105	S.	161	–	–	–	–	–	–	–	–	13	185·19	2	18·52	16	157·41	102	1138·89	32	435·18	165
273	Sutlej (Flag Ship) - - -	1 Jan. -	31 Dec. -	473	S.	733	1549·68	–	–	–	–	1	1	2·11	42	88·79	8	16·91	59	124·73	192	405·92	451	953·49	754
274 222	Tartar - - - - -	1 Jan. -	30 Sept. -	231	S.	159	1085·84	–	–	–	–	–	1	4·29	52	291·85	–	4·29	50	253·22	21	300·43	49	291·85	173
275	Topaze - - - - -	1 Jan. -	31 Dec. -	394	S.	688	1751·27	–	–	–	–	–	–	2·54	68	175·13	1	2·54	109	279·19	327	829·95	197	500·00	702
					C. M.	2	–	–	–	–	–	–	1	–	1	–	–	–	1	–	–	–	–	–	3
276	Tribune - - - - -	1 Jan. -	31 Dec. -	240	S.	881	3670·83	–	–	–	–	–	2	8·33	50	208·33	5	20·83	57	237·50	167	695·83	605	2520·83	886
	TOTALS - - -			*3,524	–	5,440	1759·95	–	–	–	–	1	29	9·38	569	184·08	52	16·79	723	233·95	1,580	511·16	2,634	852·15	5,588

* The average mean force borne for the whole year was 3,091, and on that number the proportions are cast.

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																		
261	Bacchante	S.	–	–	–	–	10	324	–	–	34	9	17	26	–	586	21·01	684·99	–	–	–	87	18·4	127	3	84	– – –	–
262	Cameleon	S.	–	–	–	–	2	48	1	28	–	6	8	7	–	136	102·36	3590·55	94·49	56244·09	–	11	8·7	25 in 6 mos.	1	24	– – –	–
		C. M.	–	2	8	–	11	408	11	7,115	–	–	–	6														
263	Charybdis	S.	–	–	–	–	4	120	–	–	3	10	18	10	–	378	18·69	560·75	–	–	–	44	20·6	62 in 9 mos.	2	60	– – –	–
264	Clio	S.	–	–	–	1	6	230	–	–	–	5	14	13	–	418	35·93	1377·25	–	–	5·99	34	13·4	152	2	68	– – –	10
265	Devastation	S.	–	–	–	–	4	192	1	28	4	5	3	9	–	207	31·25	1500·00	7·81	218·75	–	22	17·2	Not stated.	2	96	– – –	–
266	Forward	S.	–	–	–	–	–	–	1	28	–	2	–	1	–	7	–	–	37·04	1037·04	–	3	11·1	not stated.	–	–	– – –	–
267	Grappler	S.	–	–	–	–	1	48	2	70	–	2	2	4	1	41	31·25	1500·00	62·50	2187·50	–	4	12·5	Not stated.	–	–	– – –	–
268	Hecate	S.	–	–	–	–	–	–	–	–	–	2	7	3	–	54	–	–	–	–	–	4	4·1	125 in 6 mos.	–	–	– – –	–
268*b* 39	Leander	S.	–	–	–	–	2	96	–	–	13	10	18	8	–	456	5·56	266·67	–	–	–	42	7·9	63	2	96	Proportions include entries at No. 39.	16
269	Mutine	S.	–	–	–	–	2	72	–	–	–	2	2	6	–	255	13·51	486·49	–	–	–	17	11·5	164 in 9 mos.	–	–	– – –	–
270	Naïad	S.	–	–	–	–	–	–	2	28	–	–	–	2	–	7	–	–	133·33	1866·67	–	–	–	–	–	–	– – –	3
271	Nereus	S.	–	–	–	–	–	–	–	–	1	1	1	4	–	37	–	–	–	–	–	3	8·6	–	–	–	– – –	6
272 56	Shearwater	S.	–	–	–	–	1	48	–	–	–	–	1	3	–	146	9·26	444·44	–	–	–	8	7·4	75	–	–	Proportions include entries at No. 56.	5
273	Sutlej	S.	–	–	–	1	3	96	1	28	10	10	24	17	–	694	6·34	202·96	2·11	59·20	2·11	35	7·4	160	3	96	– – –	36
274 222	Tartar	S.	–	–	–	–	3	84	–	–	–	3	4	15	–	138	17·17	566·52	–	–	–	36	15·6	32 in 6 mos.	–	–	Proportions include entries at No. 222.	–
275	Topaze	S.	–	–	–	–	4	150	17	490	33	9	8	30	–	604	10·15	380·76	48·22	3093·91	2·54	82	20·8	Not stated.	1	30	– – –	–
		C. M.	–	–	–	1	–	–	2	729	–	–	–	1														
276	Tribune	S.	–	–	–	–	4	180	–	–	1	7	14	28	–	859	16·67	750·00	–	–	–	45	18·7	201 in 9 mos.	1	36	– – –	–
	TOTALS		–	2	8	3	57	2,096	38	8,544	99	83	141	193	1	5,023	18·44	678·10	12·29	2764·15	0·97	477	13·5	–	17	590	Lost to the Service	–

STATION, "SOUTH-EAST COAST OF AMERICA."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period. (1863.)		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-Commissioned Officers and Private Marines, Convicted of the undermentioned Crimes and Offences.																	Total Number of Crimes and Offences.
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Offences of the 1st Degree.					Offences of the 2d Degree.						Offences of the 3d Degree.						
								Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
													Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
277 2	Alecto	1 April	31 Dec.	100	S.	206	2571·43	–	–	–	–	–	1	10·99	16	197·80	1	21·98	31	340·66	54	714·28	115	1428·57	218
278	Ardent	1 Jan.	5 Aug.	99	S.	129	2186·44	–	–	–	–	–	–	–	14	237·29	1	16·95	17	288·14	–	–	97	1644·07	129
279	Curlew	1 Jan.	31 Dec.	81	S.	104	1283·95	–	–	–	–	–	–	–	8	98·77	–	–	13	160·49	18	222·22	68	839·51	107
280	Doterel	1 Jan.	31 Dec.	31	S.	36	1161·29	–	–	–	–	–	–	–	6	193·55	–	–	10	322·58	15	483·87	7	225·81	38
281 20	Egmont (Store Ship, at Rio de Janeiro).	1 April	31 Dec.	108	S.	223	3500·00	–	–	–	–	–	–	–	36	364·29	1	7·14	35	278·57	50	707·14	102	2178·57	224
282	Forte (Flag Ship)	1 Jan.	31 Dec.	428	S.	906	2116·82	–	–	–	–	–	–	–	72	168·23	11	25·70	90	210·28	407	950·93	343	801·40	3
283	Madagascar (Store Ship, at Rio de Janeiro).	1 Jan.	8 May	44	S.	34	–	–	–	–	–	–	4	–	10	–	–	–	8	–	3	–	11	–	36
284	Satellite	1 Jan.	31 Dec.	218	S.	470	2155·96	–	–	–	–	–	–	–	37	169·72	1	4·59	42	192·66	188	862·39	208	954·13	476
285	Sheldrake	1 Jan.	31 Dec.	30	S.	71	2366·67	–	–	–	–	–	–	–	9	300·00	–	–	16	533·33	31	1033·33	21	700·00	77
286	Spider	1 Jan.	31 Dec.	30	S.	64	2133·33	–	–	–	–	–	–	–	12	400·00	–	–	22	733·33	18	600·00	21	700·00	73
287	Stromboli	1 Jan.	31 Dec.	136	S.	255	1882·35	–	–	–	–	2	–	–	29	220·59	1	7·35	62	455·89	79	580·89	97	713·24	270
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
288 64	Triton	1 April	31 Dec.	63	S.	110	2133·33	–	–	–	–	–	–	–	19	333·33	–	16·67	29	550·00	32	716·67	35	616·67	115
					C. M.	1	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–	2
	TOTALS			1,368*	–	2,610	2120·23	–	–	–	–	2	5	4·06	269	218·52	17	13·81	375	304·63	896	727·86	1,125	913·89	2,689

* The average number of Men and Boys borne for the whole year was 1,231; and on that number the proportions are cast.

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																		
277 2	Alecto	S.	–	–	–	–	2	53	1	28	1	1	6	–	–	198	21·98	582·42	21·98	615·38	–	20	11·9	116	1	36	– – –	5
278	Ardent	S.	–	–	–	–	1	48	–	–	9	–	4	3	–	116	16·95	813·56	–	– –	–	9	9·1	70	1	48	– – –	3
279	Curlew	S.	–	–	–	–	–	–	–	–	–	3	2	2	–	100	–	–	–	– –	–	15	18·5	93	–	–	– – –	6
280	Doterel	S.	–	–	–	–	–	–	–	–	–	–	3	2	–	33	–	–	–	– –	–	3	9·7	104	–	–	– – –	2
281 20	Egmont	S.	–	–	–	–	2	60	1	28	10	3	4	16	–	209	14·29	428·57	14·29	500·00	7·14	13	9·3	5	1	24	Proportions include entries at No. 20.	3
282	Forte	S.	–	–	–	–	4	156	3	56	47	9	27	91	–	766	9·35	364·49	7·01	130·84	–	97	22·7	85	1	36	– – –	52
283	Madagascar	S.	–	–	–	–	5	204	4	182	–	2	2	7	1	17	–	–	–	– –	–	14	31·8	–	3	120	– – –	5
284	Satellite	S.	–	–	–	–	–	–	–	–	–	2	2	11	1	464	–	–	–	– –	–	12	5·5	72½	–	–	– – –	35
285	Sheldrake	S.	–	–	–	–	1	24	–	–	–	–	4	1	1	69	33·33	800·00	–	– –	–	6	20·0	48	1	24	– – –	5
286	Spider	S.	–	–	–	–	–	–	–	–	–	–	4	1	–	62	–	–	–	– –	–	5	16·7	73	–	–	– – –	4
287	Stromboli	S.	–	–	–	2	3	120	5	56	–	2	9	23	–	238	22·06	882·35	44·12	3095·59	14·71	26	19·1	132	–	–	– – –	10
		C. M.	–	–	–	–	–	–	1	365	–	–	–	1	1													
288 64	Triton	S.	–	–	–	–	–	–	–	–	–	2	6	5	1	99	–	–	16·67	6083·33	–	5	7·9	36	–	–	Proportions include entries at No. 64.	5
		C. M.	–	–	–	–	–	–	1	365	–	–	1	1	–	1												
	TOTALS		–	–	–	2	18	665	16	1,080	67	24	74	164	5	2,372	14·62	540·21	13·00	877·34	1·63	225	16·4	–	8	238	Lost to the Service	

(OFFENCES.)

STATION, "AUSTRALIA."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1863).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
289 16	Curaçoa (Flag ship) - - -	1 July -	31 Dec. -	322	S.	416	2809·95	–	–	–	–	–	1	4·52	28	135·75	1	9·05	19	108·60	39	610·86	334	1990·95	422
290	Eclipse - - - - -	1 Jan. -	31 Dec. -	76	S.	175	2302·63	–	–	–	–	–	1	13·16	15	197·37	2	26·32	20	263·16	33	434·21	105	1381·58	176
291 22	Esk - - - - -	1 July -	31 Dec. -	213	S.	509	5151·52	–	–	–	–	–	–	–	44	348·49	2	15·15	30	242·42	64	1371·21	376	3250·00	516
292	Fawn - - - - -	1 Jan. -	11 April -	139	S. C. M.	127 5	– –	– –	– –	– –	– –	– –	– 5	– –	17 –	– –	– –	– –	1 –	– –	– –	– –	109 –	– –	127 5
293	Harrier - - - - -	1 Jan. -	31 Dec. -	137	S.	293	2138·61	–	–	–	–	–	7	51·09	28	204·38	3	21·90	55	401·46	95	693·43	124	905·11	312
294	Miranda - - - - -	1 Jan. -	31 Dec. -	168	S.	283	1684·52	–	–	–	–	–	4	23·81	38	226·19	4	23·81	66	392·86	98	583·33	95	565·48	305
295	Pioneer - - - - -	1 Jan. -	22 Sept. -	86	S. C. M.	245 1	3967·74 –	– –	– –	– –	– –	– –	1 –	16·13 –	24 1	403·23 –	1 –	16·13 –	16 –	258·06 –	76 –	1225·81 –	129 –	2080·65 –	247 1
		TOTALS - - -		1,141*	–	2,054	2738·67	–	–	–	–	–	19	25·33	195	260·00	13	17·33	207	276·00	405	540·00	1,272	1696·00	2,111

* The average mean force borne for the whole year was 750, and for that number the proportions are cast.

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Average Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number. *	Lashes. *		
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																		
289 } 16 }	Curaçoa - - - - -	S.	–	–	–	–	3	132	9	252	1	1	4	13	–	395	13·57	597·29	40·72	1140·27	–	22	6·8	76	1	36	Proportions include the entries at No. 16.	–
290	Eclipse - - - - -	S.	–	–	–	–	–	–	3	146	–	5	10	5	1	152	–	–	39·47	1921·05	–	6	7·9	51 in 6 m.	–	–	- - -	–
291 } 22 }	Esk - - - - -	S.	–	–	–	–	3	72	3	84	–	3	6	17	–	487	22·73	545·45	22·73	636·36	–	32	15·0	106	2	36	Proportions include the entries at No. 22.	–
292	Fawn - - - - -	S.	–	–	–	–	–	–	–	–	–	1	–	–	–	126	–	–	–	–	–	18	12·9	Not stated.	–	–	- - -	–
		C. M.*	–	–	–	–	–	–	5	1,642																		
293	Harrier - - - - -	S.	–	–	–	1	8	348	21	874	–	6	1	9	–	261	58·39	2540·15	153·28	6379·56	7·30	28	20·4	3 in 6 m.	2	96	- - -	–
294	Miranda - - - - -	S.	–	–	–	1	6	252	24	886	–	6	6	15	–	240	35·71	1500·00	142·86	5273·81	5·95	40	23·8	63 in 6 m.	2	72	- - -	–
295	Pioneer - - - - -	S.	–	–	–	–	2	96	18	427	3	3	2	8	–	217	–	–	–	–	–	–	–	–	–	–	- - -	–
		C. M.	–	–	–	–	–	–	1	365	–	–	–	–	1	–	32·26	1548·39	306·45	12774·19	–	29	33·7					
	TOTALS - - -		–	–	–	2	22	900	84	4,676	4	25	29	67	2	1,878	29·33	1200·00	112·00	6234·67	2·67	175	15·3	–	7	240	- - -	–

* Tried in England.

AN ABSTRACT of the CRIMES and PUNISHMENTS in the several Squadrons or Divisions of the Fleet at Home and Abroad,

Distinguishing No.	SQUADRON OR DIVISION.	Year.	Average Number of Men and Boys borne.	CONVICTIONS.		Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, convicted of the undermentioned Crimes and Offences.																	TOTAL Number of Crimes and Offences.
				Number of.	Average per 1,000 borne, per Year.	Offences of the 1st degree.				Offences of the 2nd degree.							Offences of the 3rd degree.						
						Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Desertion.		Insubordination.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
											No. Convicted of.	Proportion per 1,000 per Year.	No. Convicted of.	Proportion per 1,000 per Year.	No. Convicted of.	Proportion per 1,000 per Year.	No. Convicted of.	Proportion per 1,000 per Year.	No. Convicted of.	Proportion per 1,000 per Year.	No. Convicted of.	Proportion per 1,000 per Year.	
1	HOME*	1862	12,620	16,636	1318·22	–	–	1	–	9	265	20·99	415	32·88	170	13·47	990	78·44	10,152	804·43	5,003	396·43	17,00
		1863	13,469	23,219	1723·88	–	–	–	–	11	225	16·71	1,100	81·67	190	14·11	1,397	103·72	12,244	909·05	8,689	645·11	23,85
2	THE CHANNEL SQUADRON	1862	5,161	13,431	2602·40	–	–	–	–	1	93	18·01	448	86·80	59	11·43	615	119·16	6,762	1310·21	5,535	1072·46	13,51
		1863	3,984	13,886	3485·44	–	–	–	–	2	47	11·80	669	167·92	58	14·56	858	215·36	6,637	1665·91	5,937	1490·21	14,20
3	COAST GUARD SHIPS	1862	4,007	6,680	1667·08	–	–	–	–	1	112	27·95	259	64·63	59	14·72	398	99·32	4,181	1043·42	1,800	449·21	6,81
		1863	4,001	8,498	2123·97	–	–	–	–	3	88	21·99	457	114·22	33	8·25	544	135·97	5,648	1411·65	2,007	501·62	8,78
4	DRILL SHIPS	1862	158	64	405·06	–	–	–	–	–	–	–	1	6·32	–	–	13	82·27	42	265·82	10	63·29	6
		1863	228	65	285·09	–	–	–	–	–	–	–	6	26·31	–	–	9	39·47	46	201·75	8	35·09	6
5	THE WHOLE OF THE HOME FORCE	1862	21,946	36,811	1677·34	–	–	1	–	11	470	21·41	1,123	51·17	288	13·12	2,016	91·86	21,137	963·13	12,348	562·65	37,39
		1863	21,682	45,668	2106·26	–	–	–	–	16	360	16·60	2,232	102·94	281	12·96	2,808	129·51	24,575	1133·43	16,641	767·50	46,91
6	MEDITERRANEAN	1862	9,977	23,115	2316·82	–	–	–	–	11	45	4·51	1,516	151·94	101	10·12	3,525	353·31	7,659	767·66	11,226	1125·18	24,08
		1863	8,301	19,288	2323·58	–	–	2	–	5	15	1·81	1,266	152·51	88	10·60	2,417	291·17	5,476	659·68	10,591	1275·87	19,86
		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	NORTH AMERICA AND WEST INDIES	1862	9,684	18,024	1861·21	–	–	–	–	20	85	8·77	1,398	144·36	129	13·32	2,102	217·05	6,929	715·50	7,875	813·19	18,53
		1863	6,068	14,233	2345·58	–	–	–	–	10	66	10·88	1,489	245·39	74	12·20	1,480	243·90	4,935	813·28	6,492	1069·87	14,54
8	EAST INDIES and CHINA	1862	4,383	8,311	1896·18	–	–	–	1	3	41	9·35	692	157·88	71	16·19	1,018	232·26	2,417	551·44	4,369	996·80	8,61
		1863	5,290	12,212	2308·51	15	–	–	–	5	28	5·29	1,215	229·68	65	12·29	1,583	299·24	3,283	620·60	6,416	1212·85	12,61
	CAPE OF GOOD HOPE and WEST COAST OF AFRICA:																						
9	CAPE DIVISION	1862	1,565	2,079	1328·43	–	–	–	–	4	12	7·66	150	95·84	16	10·22	196	125·23	412	263·25	1,331	850·47	2,12
		1863	1,345	2,322	1726·39	–	–	–	–	2	8	5·95	283	210·41	10	7·43	277	205·95	540	401·49	1,270	944·24	2,39
10	WEST COAST DIVISION	1862	2,167	2,721	1255·65	–	–	–	–	1	7	3·23	384	177·20	18	8·30	334	154·13	224	103·36	1,841	849·56	2,80
		1863	1,705	2,876	1686·84	–	–	2	–	–	1	0·58	355	208·21	20	11·73	272	159·52	170	99·71	2,111	1238·12	2,93
11	PACIFIC	1862	2,714	4,505	1658·06	–	–	–	–	1	65	23·94	406	149·59	22	8·10	620	228·44	875	322·40	2,626	967·57	4,61
		1863	3,091	5,440	1759·95	–	–	–	–	1	29	9·38	569	184·08	52	16·79	723	233·95	1,580	511·16	2,634	852·15	5,58
12	SOUTH EAST COAST OF AMERICA	1862	1,245	2,057	1652·20	–	–	–	–	1	15	12·04	220	176·70	17	13·65	356	285·94	652	523·69	866	695·58	2,12
		1863	1,231	2,610	2120·23	–	–	–	–	2	5	4·06	269	218·52	17	13·81	375	304·63	896	727·86	1,125	913·89	2,68
13	AUSTRALIA	1862	942	2,033	2158·17	–	–	–	–	–	34	36·09	175	185·77	15	15·92	208	220·80	495	525·47	1,166	1237·79	2,0
		1863	750	2,054	2738·67	–	–	–	–	–	19	25·33	195	260·00	13	17·33	207	276·00	405	540·00	1,272	1696·00	2,1
14	THE WHOLE FORCE ABROAD	1862	32,677	62,845	1923·21	–	–	–	1	41	304	9·30	4,941	151·21	389	11·90	8,359	255·81	19,663	601·74	31,300	957·86	64,9
		1863	27,781	61,035	2197·01	15	–	4	–	25	171	6·16	5,641	203·05	339	12·20	7,334	263·96	17,285	622·19	31,911	1148·63	62,7
		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
15	THE WHOLE FORCE AT HOME AND ABROAD	1862	54,623	99,656	1824·43	–	–	1	1	52	774	14·16	6,064	111·01	677	12·39	10,375	189·93	40,800	746·93	43,648	799·07	102,3
		1863	49,463	106,703	2157·23	15	–	4	–	41	531	10·74	7,873	159·17	620	12·53	10,142	205·04	41,860	846·29	48,552	981·58	109,6
		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

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* Other than the Channel Squadron, Coast Guard Ships, and Drill Ships.

in the whole Navy, in the Year 1863, as compared with the same in the Year 1862 ("Officers" excluded).

PUNISHMENTS.													Average per 1,000 Men and Boys, per Year.						Per-Centage of Men and Boys in Second Class for Conduct.	Distinguishing No.
al Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to Second Class for Conduct.	Discharged as objectionable.	Minor.	Flogged.	Lashes inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.			
	Years.		Number of.	Lashes.	Number of.	Days.														
	13	14	116	3,312	542	27,148	426	84	262	560	102	15,142	9·11	262·44	42·94	2151·18	1·10	4·8	1
	–	26	144	3,643	577	27,603	445	126	351	755	211	21,955	10·69	270·47	42·84	2049·37	1·93	6·7	
	5	9	54	1,929	226	13,585	262	91	140	507	41	12,701	10·46	373·76	43·78	2632·24	1·74	14·5	2
–	–	5	46	1,610	273	13,638	333	104	190	501	56	13,248	11·55	404·12	68·52	3423·19	1·25	17·8	
1	3	9	53	1,429	283	12,298	136	57	82	306	36	6,101	13·22	356·62	70·62	3069·12	2·24	9·2	3
–	–	4	12	456	271	11,216	231	27	87	353	47	7,981	3·00	113·97	67·73	2803·30	1·00	9·2	
–	–	–	–	–	1	28	–	1	3	2	–	63	–	–	6·32	177·21	–	3·1	4
–	–	–	–	–	–	–	–	–	2	2	1	64	–	–	–	–	–	1·3	
4	21	32	223	6,670	1,052	53,059	824	233	487	1,375	179	34,007	10·16	303·92	47·93	2417·70	1·45	7·8	5
–	–	35	202	5,709	1,121	52,457	1,009	257	630	1,611	315	43,248	9·32	263·31	51·70	2419·38	1·61	9·1	
3	20	25	200	7,143	249	13,062	623	208	346	834	27	21,437	20·04	715·94	24·95	1309·21	2·50	15·3	6
3	25	18	151	5,053	220	11,646	513	159	290	716	56	18,071	18·19	608·72	26·50	1402·96	2·17	15·7	
1	Life.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
3	22	19	223	7,966	187	15,180	366	220	296	789	21	16,420	23·02	822·59	18·79	1567·53	1·96	13·3	7
2	8	8	112	4,018	147	9,099	194	124	214	492	48	13,376	18·46	662·16	24·23	1499·51	1·32	12·8	
–	–	13	145	5,046	78	7,208	241	116	127	363	3	7,517	33·08	1151·26	17·79	1644·53	2·96	14·4	8
–	–	14	123	4,720	123	8,300	178	139	191	512	14	11, 344	23·25	892·25	23·25	1569·00	2·65	14·4	
2	14	2	30	963	32	2,458	4	38	56	111	–	1,873	19·16	615·33	20·44	1570·60	1·27	8·9	9
–	–	–	24	715	34	1,066	9	24	60	109	3	2,141	17·84	531·60	25·28	792·57	–	12·2	
–	–	2	43	1,306	26	605	23	42	62	142	2	2,475	19·84	602·67	11·99	279·18	0·92	10·0	10
2	22	3	43	1,638	42	3,116	27	38	72	146	1	2,527	25·22	960·70	24·63	1827·57	1·76	12·6	
2	13	1	74	2,689	35	1,947	72	76	111	230	1	4,031	27·26	990·78	12·89	717·39	0·36	13·1	11
2	8	3	57	2,096	38	8,544	99	83	141	193	1	5,023	18·44	678·10	12·29	2764·15	0·97	13·5	
1	3	2	22	761	17	5,110	52	50	57	138	1	1,778	17·67	611·24	13·65	4104·31	1·60	17·7	12
–	–	2	18	665	16	1,080	67	24	74	164	5	2,372	14·62	540·21	13·00	877·34	1·63	16·4	
2	7	1	52	2,148	54	3,571	17	30	48	83	–	1,815	55·20	2280·25	57·32	3790·87	1·06	16·7	13
–	–	2	22	900	84	4,676	4	25	29	67	2	1,878	29·33	1200·00	112·00	6234·67	2·67	15·3	
13	79	65	789	28,022	678	48,941	1,398	775	1,103	2,690	55	57,346	24·15	857·55	20·75	1497·72	1·99	13·9	14
9	63	50	550	19,805	704	47,527	1,091	616	1,071	2,399	130	56,732	19·80	712·90	25·34	1710·77	1·80	14·3	
1	Life.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
17	100	97	1,012	34,692	1,730	102,200	2,222	1,008	1,590	4,065	234	91,353	18·52	635·11	31·67	1871·00	1·77	11·8	15
9	63	85	752	25,514	1,825	99,984	2,100	873	1,701	4,010	445	99,980	15·20	515·82	36·90	2021·39	1·72	12·0	
1	Life.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	

ABSTRACT of the CONVICTIONS and PUNISHMENTS by COURTS-MARTIAL in the Year 1863 ("Officers" excluded).

Distinguishing No.	SQUADRON OR DIVISION.	Number Tried and Convicted.	Average per 1,000 borne, per Year.	Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Tried and Convicted of the undermentioned Crimes and Offences.								Total Number of Crimes and Offences.	PUNISHMENTS.											
				Mutiny.	Unnatural Crime.	Uncleanness.	Desertion.	Insubordination.	Theft.	Drunkenness.	Absence without, or over, Leave.		Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Disrated.	Deprived of Good Conduct Badges.	Reduced to 2nd Class for Conduct.	Discharged as Objectionable.	Minor.
													No.	Years.		No.	Lashes.	No.	Days.					
1	HOME	17	1·26	–	–	–	5	9	4	–	2	20	–	–	6	6	264	14	5,839	1	–	2	4	–
2	CHANNEL SQUADRON	18	4·52	–	–	–	7	8	1	1	3	20	–	–	1	7	324	16	3,848	1	–	3	3	1
3	COAST GUARD SHIPS	9	2·25	–	–	–	4	4	–	–	2	10	–	–	3	7	300	9	3,101	–	–	–	1	–
4	MEDITERRANEAN	19	2·29	–	2	2	1	8	4	4	–	21	3 1	25 Life	8	6	288	12	5,565	3	2	5	–	1
5	NORTH AMERICA AND WEST INDIES	17	2·80	–	–	–	10	4	3	1	–	18	2	8	2	6*	252*	14	4,693	1	1	5	3	–
6	EAST INDIES AND CHINA	31	5·86	14	–	2	5	8	2	3	1	35	–	–	6	26†	1,224†	14	5,413	1	1	8	3	2
7	CAPE OF GOOD HOPE	1	0·74	–	–	–	1	–	–	–	–	1	–	–	–	1	6‡	1	182	–	–	–	1	–
8	WEST COAST OF AFRICA	5	2·93	–	2	–	–	3	2	–	–	7	2	22	2	3	144	3	2,190	–	–	1	1	1
9	PACIFIC	15	4·85	–	–	–	14	1	13	1	–	29	2	8	1	11	408	13	7,844	–	–	7	–	–
10	SOUTH-EAST COAST OF AMERICA	2	1·62	–	–	–	–	1	1	–	1	3	–	–	–	–	–	2	528	–	1	2	1	1
11	AUSTRALIA	6	8·00	–	–	–	5	1	–	–	–	6	–	–	–	–	–	6	2,007	–	–	–	1	–
	TOTALS	140	2·83	14	4	4	52	47	30	10	9	170	9 1	63 Life	29	73	3,210	104	41,210	7	5	33	18	6

(The above Crimes and Punishments are included in the Abstract on the other side.)

* Including 1 boy; 48 lashes.

† Including 5 boys; 221 lashes.

‡ Sentenced to receive 48, but 42 were remitted at the recommendation of the surgeon.

W. Hickman.

NAVY (CRIME AND PUNISHMENT).

PALL MA

RETURN to an Order of the Honourable The House of Commons,
dated 16 February 1866;—*for*,

COPY "of the REPORT on CRIME and PUNISHMENT in the ROYAL NAVY, and in the MARINE FORCES on SHORE, in the Year 1864."

(Compiled by Mr. *Hickman*, R.N., by order of the Lords Commissioners of the Admiralty.)

Admiralty,
16 February 1866.

JOHN HENRY BRIGGS,
Chief Clerk.

(*Lord Clarence Paget.*)

Ordered, by The House of Commons, *to be Printed*,
16 *February* 1866.

47.

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ALL MALL

REPORT on CRIME and PUNISHMENT in the ROYAL NAVY, and in the MARINE FORCES on SHORE, in the Year 1864.

Sir, Admiralty, S.W., 7 February 1866.

1. I HAVE the honour to request that you will bring to the notice of my Lords Commissioners of the Admiralty the annexed statistical tables, showing the nature and amount of crime and punishment in the Royal Navy, and in the Royal Marine Forces on shore, in the year that terminated on the 31st of December 1864.

2. This is the Third Annual Report that has been made on Crime and Punishment in the Navy. All the Punishment Returns, four of which are received from each ship every year, have been carefully examined and abstracted, and the system adopted in the beginning has not been departed from in the slightest degree; therefore the comparison between 1863 and 1864 may be made with certainty. Previous to 1863, the returns were not so full or so accurate as they now are; but since that time it may be taken for granted that every complaint which, on investigation, is substantiated, is, with the punishment awarded for it, however trifling it may be, duly recorded in the ship returns, and consequently included in these tables. In the present Report a statement is given of the crime and punishment in the Royal Marine Forces employed on shore at the several head quarters of the corps. In the Report for 1865 their Lordships have ordered the Coast Guard on shore to be included; and, when this is done, the tables will embrace every man and boy subject to the "Naval Discipline Act," or to the "Marine Mutiny Act."

3. At page 5, in the Report for 1863, the several stations or divisions of the fleet are ranged in numerical order, according to the position they occupy with reference to crime and punishment, No. 1 having the least, No. 2 the next, and so on. In the year 1864 they stand thus:—

INSUBORDINATION AND DISRESPECT.

1. "Home."
2. Coast-guard Ships.
3. Channel squadron.
4. China.
5. Pacific.
6. Mediterranean.
7. South-east Coast of America.
8. Cape of Good Hope.
9. West Coast of Africa.
10. North America and West Indies.
11. Australia.
12. East Indies.

THEFT.

1. China.
2. East Indies.
3. Coast-guard Ships.
4. Pacific.
5. South-east Coast of America.
6. West Coast of Africa.
7. "Home."
8. Australia.
9. Mediterranean.
10. North America and West Indies.
11. Channel squadron.
12. Cape of Good Hope.

DRUNKENNESS.

1. "Home."
2. Coast-guard ships.
3. West Coast of Africa.
4. Channel squadron.
5. East Indies.
6. Cape of Good Hope.
7. Australia.
8. Pacific.
9. North America and West Indies.
10. China.
11. Mediterranean.
12. South-east Coast of America.

IMPROPER ABSENCE.

1. West Coast of Africa.
2. Cape of Good Hope.
3. East Indies.
4. Pacific.
5. China.
6. Australia.
7. South-east Coast of America.
8. Mediterranean.
9. North America and West Indies.
10. "Home."
11. Coast-guard ships.
12. Channel squadron.

MINOR OFFENCES.

1. Coast-guard ships.
2. "Home."
3. Cape of Good Hope.
4. China.
5. Pacific
6. East Indies.
7. Channel squadron.
8. Australia.
9. North America and West Indies.
10. West Coast of Africa.
11. South-east Coast of America.
12. Mediterranean.

CORPORAL PUNISHMENTS.

1. Coast-guard ships.
2. "Home."
3. Channel squadron.
4. South-east Coast of America.
5. Pacific.
6. China.
7. Cape of Good Hope.
8. Mediterranean.
9. North America and West Indies
10. West Coast of Africa.
11. East Indies.
12. Australia.

IMPRISONMENTS.

1. West Coast of Africa.
2. Pacific.
3. South-east Coast of America.
4. North America and West Indies.
5. "Home."
6. Cape of Good Hope.
7. Mediterranean.
8. East Indies.
9. China.
10. Australia.
11. Channel squadron.
12. Coast-guard ships.

SECOND CLASS FOR CONDUCT.

1. "Home."
2. Coast-guard ships.
3. Cape of Good Hope.
4. Pacific.
5. North America and West Indies.
6. West Coast of Africa.
7. China.
8. South-east Coast of America.
9. East Indies.
10. Australia.
11. Mediterranean.
12. Channel squadron.

4. Following out the plan pursued in former reports, I shall now proceed to place the ships of the fleet on the several stations in their order of merit, under the different heads of crime and punishment. This plan is assumed to be useful to commanding officers, as enabling them to discover at once the comparative merits or failings of their respective crews with reference to the crews of other ships similarly situated on the same station; they each have, more or less, a knowledge of the extraneous circumstances that may have resulted in their appearing better or worse than their neighbours; but with this question I have nothing to do; my simple duty is to "bind up the sheaves, leaving to others the task of threshing out the corn."

(NOTE.—The following lists do not include ships that have not sent at least two quarterly returns into office during the year. Where the returns are for less than the whole year the name of the ship is printed in italics.)

I.—SHIPS AT HOME, other than the Channel Squadron, Coast-guard Ships, and Drill Ships.

INSUBORDINATION and DISRESPECT.—Average Convictions, 84·62 per 1,000 of the mean force borne for the year.

This division of the fleet continues to maintain the highest position in that branch of discipline which is marked by a comparative absence of insubordination. The force, no doubt, is favourably constituted to show this result; for instance, there are the training ships for boys, where no great amount of insubordination could ever be expected. The gunnery ships and yachts, with selected crews; and other harbour ships, the men of which have daily intercourse with their families. Still, making every allowance for these peculiar advantages, the division seems to be composed of an exemplary body of men; and even those in particular ships, such as the guard ships of the reserves and the depôt ships (where large numbers are brought together at times, with little to do) come out remarkably well in the tables.

Below the Average.				Above the Average.			
Enchantress	0·00	Industry	37·74	Geyser	87·64	Sheerness Naval Barracks	177·14
Medusa		Osborne	38·96	Hastings	104·76	*Salamis*	264·71
Cambridge	14·31	Implacable	39·36	*Royal Sovereign*	106·38	Fox	265·06
Wellesley	18·31	Fisgard	39·53	Boscawen	112·13	*Research*	293·13
Excellent	23·34	Dasher	40·94	Royal Adelaide	128·31	*Gladiator*	308·18
St. Vincent	28·08	Dromedary	41·67	Himalaya	135·14	Tamar	340·54
Duke of Wellington	29·96	Indus	41·77	Britannia	137·50	*Enterprise*	417·91
Cumberland	31·25	Victory	51·12	Orontes	153·85		
Asia	33·48	Canopus	54·79	Supply	162·79		
Dee	35·71	Impregnable	58·61	Formidable	175·36		

THEFT.—Average Convictions, 10·74 per 1,000.

This offence has considerably decreased since the last report, when the average convictions were 14·11 per 1,000 of the mean force. With few exceptions, the cases recorded under this head throughout these tables are acts of petty pilfering or unlawful possession, and not such as to call forth severe punishments.

Below the Average.				Above the Average.			
Dasher	0·00	Indus	1·72	Himalaya	10·81	*Royal Sovereign*	21·28
Dee		Cambridge	1·79	Wellesley	11·44	Tamar	32·43
Enchantress		Royal Adelaide	3·66	Victory	12·78	Orontes	38·46
Fisgard		Duke of Wellington	3·75	Geyser	13·51		
Fox		Britannia	4·17	St. Vincent	14·71		
Hastings		*Gladiator*	6·29	*Enterprise*	14·93		
Medusa		Boscawen	7·36	Sheerness Naval Barracks	17·14		
Osborne		Asia	7·73	Canopus	18·26		
Research		Implacable	8·94	Industry	18·87		
Salamis		Formidable	9·48	Impregnable	20·76		
Supply		Excellent	9·83	Dromedary	20·83		
Cumberland	1·56						

DRUNKENNESS.—Average Convictions, 87·42 per 1,000.

This offence has decreased to its present average from 103·72 per 1000 in the year 1863; but of 37 ships, in which the proportions are cast, there are only five where the average of the whole Navy is exceeded.

Below the Average.				Above the Average.			
Enchantress	0·00	Duke of Wellington	52·43	Hastings	95·24	*Royal Sovereign*	170·21
Implacable	10·73	Medusa	54·55	Britannia	100·00	Himalaya	178·38
Impregnable	13·43	Fisgard	55·34	Victory	118·21	Canopus	18·950
Boscawen	25·74	Dasher	64·33	Supply	139·53	Geyser	202·71
St. Vincent	29·41	Excellent	65·11	Dee	142·86	Sheerness Naval Barracks	274·29
Indus	33·25	Orontes	76·92	Royal Adelaide	142·86	*Research*	292·13
Cambridge	35·78	Dromedary	83·33	Formidable	146·92	Fox	301·20
Industry	37·74	Cumberland	84·37	Osborne	155·84	Tamar	308·11
Asia	38·63			*Gladiator*	163·52	*Salamis*	382·35
Wellesley	43·48			*Enterprise*	164·18		

IMPROPER ABSENCES.—Average Convictions, 801·26 per 1,000.

The decrease in this troublesome class of offences is considerable since the former reports. In 1863, the average convictions under this head stood at 909·05 per 1,000 of the mean force. This favourable change in the habits of the men has not been brought about by any reduction of leave: on the contrary, it is said by those officers who are the best capable of making a comparison, that at no previous period was the indulgence so freely granted on all the Home stations as in 1864.

Below the Average.				Above the Average.			
Impregnable	46·40	Osborne	467·53	*Research*	820·22	Fisgard	1415·02
Implacable	110·91	Asia	490·99	Britannia	845·83	Supply	1441·86
St. Vincent	161·76	Excellent	511·06	Victory	878·56	Himalaya	1475·68
Boscawen	194·85	Industry	528·30	Tamar	940·54	Sheerness Naval Barracks	1531·43
Dasher	198·83	Dromedary	583·33	Fox	1108·43	Geyser	1581·08
Wellesley	263·16	Hastings	614·29	Formidable	1123·22	Canopus	1787·67
Cambridge	347·05	Cumberland	640·62	Medusa	1163·64	Duke of Wellington	1915·73
Enchantress	405·40	*Gladiator*	710·69	Royal Adelaide	1205·13	*Salamis*	2117·65
Indus	413·47	Orontes	730·77	Dee	1214·29	*Enterprise*	3626·86
				Royal Sovereign	1404·26		

MINOR OFFENCES.—Average Convictions, 613·73 per 1,000.

The convictions under this head have decreased to the present average from 645·11 in 1863. Most of the cases are, in themselves, of a trifling nature, but they call for the infliction of some penalty, because, if they were allowed to go altogether unnoticed, they would militate against,-nay, it may be said that they would entirely subvert, what is understood in the service as "good order." Drunkenness may prevail from the accident of position or opportunity (and drunkenness frequently leads to the grosser cases of insubordination); so also may leave-breaking; but "minor offences" do not appear to be dependent on accidental circumstances; they will be found to prevail to an undue extent in certain ships on all stations: in these ships they become chronic; and although the crews may be addicted to no particular vice, their general habits and conduct may be said to be such as to give a good deal of unnecessary trouble to their commanders. The punishments awarded to this class of defaulters vary from extra duty to a reprimand administered by the commanding officer. Perhaps there is no surer criterion of the usual condition of a ship than that which is afforded by the record of "minor offences."

Below the Average.				*Above the Average.*			
Enchantress	0·00	Dromedary	250·00	Geyser	641·8	Implacable	1171·74
Dasher	29·24	Formidable	260·66	Sheerness Naval Barracks	691·43	*Salamis*	1205·88
Osborne	38·96	Industry	283·02	Canopus	819·63	Tamar	1686·49
Cumberland	39·06	Britannia	316·67	Royal Adelaide	963·37	*Enterprise*	2208·96
Dee	71·43	Wellesley	343·25	Orontes	1164·84	*Gladiator*	2817·61
Fisgard	79·05	Victory	376·96			*Research*	3651·68
Supply	93·01	Fox	385·54				
Indus	105·71	Boscawen	402·57				
Asia	138·20	Himalaya	416·22				
Medusa	145·45	Impregnable	444·44				
St. Vincent	176·47	Excellent	453·32				
Cambridge	198·57	Duke of Wellington	526·22				
Hastings	242·86	*Royal Sovereign*	531·92				

Flogged.—Average Number, 6·31 per 1,000.

The decrease of this punishment is very remarkable, especially when we find it connected with a decrease also in the proportion of imprisonments. The above average includes boys both in the training and other ships. Excluding them, there were only 11 corporal punishments in this division, which consisted of more than a mean force of 9,000 men for the whole year. The number of men borne for a longer or shorter period must have been about 16,000, and they were distributed in 65 ships and their tenders. Out of these 65 ships there were but nine in which men were flogged, and seven of the nine were sea-going ships. There were but three corporal punishments on men in non-sea-going ships, and two of these were by sentence of court-martial.

Below the Average.				*Above the Average.*			
Cambridge	0·00	*Research*	0·00	Geyser	6·76	Impregnable	14·65
Cumberland		*Royal Sovereign*		Britannia	8·34	Wellesley	16·02
Dee		Sheerness Naval Barracks		Himalaya	10·81	Boscawen	16·54
Dromedary		Supply		Orontes	10·99	St. Vincent	18·72
Duke of Wellington		Asia	0·86	Dasher	11·70	*Salamis*	29·41
Enchantress		Canopus	2·28	Implacable	14·31		
Enterprise		Victory	3·19				
Formidable		Royal Adelaide	3·66				
Fox		Excellent	3·69				
Hastings		Fisgard	3·95				
Indus		Tamar	5·41				
Industry		*Gladiator*	6·29				
Medusa							
Osborne							

Imprisoned.—Average Number, 30·75 per 1,000.

The punishment of imprisonment has greatly decreased in this division since the former report. It should be understood that a very considerable portion of it does not properly attach to this Home Division, inasmuch as deserters from ships abroad, who are convicted in this country, are thus summarily punished from the guard ships.

Below the Average.				*Above the Average.*			
Implacable	0·00	*Gladiator*	18·87	Tamar	32·43	Fox	60·24
Indus	0·85	Industry	18·87	Asia	36·91	Victory	73·45
Impregnable	1·22	Wellesley	20·59	Osborne	38·96	Geyser	74·32
Boscawen	1·85	Canopus	22·83	Dasher	40·94	Duke of Wellington	82·40
St. Vincent	4·01	Supply	23·26	Formidable	42·65	Dromedary	83·33
Hastings	9·52	Cumberland	26·56	Orontes	43·97	Royal Adelaide	106·23
Excellent	13·51	Enchantress	27·03	Sheerness Naval Barracks	51·43	*Enterprise*	119·40
Cambridge	16·10	Britannia	29·17	*Royal Sovereign*	53·19	Fisgard	126·45
Himalaya	16·22			Dee	53·57	Medusa	127·27
				Salamis	58·82	*Research*	202·25

In the Second Class for CONDUCT.—Average Number, 8·0 per cent.

The average under this head has increased since 1863, when it stood at 6·7 per cent. It is difficult to understand why this should be, seeing that in other respects the division has improved.

Below the Average.				*Above the Average.*			
Victoria and Albert Pigmy	0·0	Industry	3·8	Gladiator	8·2	Megæra	12·6
Impregnable	0·2	Supply	4·7	Victory	8·9	Royal Sovereign	13·0
Boscawen	0·4	Enchantress	5·4	Achilles	9·4	Highflyer	13·8
Wellesley	0·7	Cordelia	5·5	Bombay	9·5	Canopus	13·9
St. Vincent	0·8	Ranger	5·6	Enterprise	9·9	Duncan	14·4
Cambridge	1·3	Formidable	5·7	Wolverine	10·0	Medusa	14·5
Saturn	1·6	Racer	5·7	Dromedary	10·4	Orontes	14·8
Excellent	1·7	Britannia	5·8	Dee	10·7	Galatea	14·9
Indus	1·9	Dasher	5·9	Salamander	10·7	Himalaya	15·1
Jackal	2·0	Bulldog	6·4	Royal Adelaide	11·0	Duke of Wellington	15·2
Osborne	2·6	Urgent	6·4	Lyra	11·2	Research	15·5
Assurance	2·7	Brisk	6·6	Sheerness Naval Barracks	11·4	Cadmus	15·7
Cumberland	2·8	Espoir	6·7			Fox	15·7
Asia	3·3	Sharpshooter	6·8	Salamis	11·5	Geyser	17·6
				Princess Royal	11·7	Tamar	22·2
				Racoon	11·9	Fisgard Hastings Implacable	No information in Returns.
				Clio	12·2		
				Adventure	12·5		
				Victoria	12·5		

II.—THE CHANNEL SQUADRON.

INSUBORDINATION AND DISRESPECT.—Average Convictions, 168·91 per 1,000.

There has been no appreciable alteration in the average convictions under this head since 1863. There is no other sea-going squadron where the average is so low as in this squadron, and it is far below that in the whole force abroad.

Below the Average.				*Above the Average.*			
Warrior	109·00	*Prince Consort*	145·38	Aurora	186·58	*Hector*	230·94
Black Prince	140·87	Defence	152·94	Edgar	218·95		

THEFT.—Average Convictions, 13·19 per 1,000.

This crime has decreased in the squadron since 1863, when the average convictions were 14·56 per 1,000.

Below the Average.				*Above the Average.*			
Hector	2·24	Black Prince	12·38	Defence	14·12	Aurora	18·87
Edgar	8·47			*Prince Consort*	17·68	*Warrior*	19·03

DRUNKENNESS.—Average Convictions, 160·73 per 1,000.

There is no other squadron in which drunkenness has so much decreased as in this. In 1863 the convictions averaged 215·36 per 1,000. The difference between the two averages shows an improvement in the proportion of 25·4 per cent.

Below the Average.				*Above the Average.*			
Warrior	121·11	*Hector*	141·26	Edgar	217·51	Defence	237·65
Black Prince	128·48	Aurora	142·56				
Prince Consort	137·52						

IMPROPER ABSENCES.—Average Convictions, 1327·79 per 1,000.

Here, again, there is a great improvement in the squadron as compared with what it was in the year 1863, when the average convictions on account of improper absences reached 1665·91 per 1,000. The average is still high, and probably it always will be so in comparison with other squadrons where the opportunities of granting leave to the men are fewer.

Below the Average.				*Above the Average.*			
Aurora	1115·50	Black Prince	1187·31	*Warrior*	1368·51	Edgar	1475·99
Prince Consort	1117·88			Defence	1418·82	*Hector*	1623·32

MINOR OFFENCES.—Average Convictions, 1252·05 per 1,000.

The convictions under this head have decreased to the present average from 1490·21 per 1,000 in 1863.

Below the Average.				*Above the Average.*			
Hector	881·17	*Prince Consort*	1161·10	Aurora	1299·79	Edgar	1622·88
Warrior	1131·49	Black Prince	1181·11	Defence	1350·59		

FLOGGED.—Average Number, 8·97 per 1,000.

In the previous report the average of corporal punishments was 11·55 of the mean force borne for a year. The difference between that average and the present is in the proportion of 22·3 per cent. In 1863, the proportion of men flogged was 1 in every 147; in 1864 it was 1 in every 200.

Below the Average.				*Above the Average.*			
Warrior	0·00	*Prince Consort*	7·86	Defence	14·12	Edgar	19·77
Aurora	2·96	*Hector*	8·97				
Black Prince	7·74						

IMPRISONED.—Average Number, 56·74 per 1,000.

This punishment has also declined since 1863, when the average of persons subjected to it stood at 68·52 per 1,000 of the mean force.

Below the Average.				*Above the Average.*			
Aurora	25·16	Black Prince	41·79	Defence	75·29	Edgar	97·46
Warrior	29·41	*Prince Consort*	47·18	*Hector*	76·23		

In the Second Class for CONDUCT.—Average Number, 17·1 per Cent.

The proportion of men in this class has declined since 1863, but it still remains above that of any other division of the fleet abroad or at home.

Below the Average.				*Above the Average.*			
Aurora	8·6	Hector	15·7	Defence	23·5	Edgar	26·5
Warrior	12·1	Prince Consort	16·4				
Black Prince	15·2						

III.—THE COAST-GUARD SHIPS AND THEIR TENDERS.

INSUBORDINATION AND DISRESPECT.—Average Convictions, 120·38 per 1,000, against 114·22 in 1863.

In 1864 the crews of eight out of the eleven Coast-guard ships were paid off and transferred into other ships. To effect this arrangement the ships were sent from their usual stations to Portsmouth, Plymouth, or Sheerness, where the processes of dismantling and paying-off one ship, and fitting out and transferring to another, were accomplished. In some cases several weeks were occupied in these duties. The temptations to which the men are subjected, and the opportunities they have of committing irregularities, were increased under these circumstances; but in the instances quoted they do not appear to have told with any particularly bad effect, the result of the returns for the whole year showing the crews to have been extremely well behaved. The convictions on account of insubordination and disrespect averaged 120·38 per 1,000, against 114·22 in the previous year (1863).

Below the Average.				*Above the Average.*			
Colossus and Frederick William	42·86	Pembroke	108·33	Cornwallis and Dauntless	121·95	Blenheim	156·34
Hawke	50·80	Ajax and Royal George	112·80	Dauntless and Irresistable	133·93	Majestic and Donegal	183·82
Edinburgh and Trafalgar	66·67			Russell and St. George	155·31	Hogue and Lion	198·25

THEFT.—Average Convictions, 7·59 per 1,000, against 8·25 per 1,000 in 1863.

Below the Average.				*Above the Average.*			
Edinburgh and Trafalgar, Hawke	0·00	Blenheim	5·90	Dauntless and Irresistible	8·93	Hogue and Lion	11·66
Ajax and Royal George	4·34	Colossus and Frederick William	7·14	Majestic and Donegal	9·80	Cornwallis and Dauntless	12·19
				Pembroke	11·11	Russell and St. George	13·62

DRUNKENNESS.—Average Convictions, 141·38 per 1,000, against 135·97 in 1863.

Below the Average.				*Above the Average.*			
Dauntless and Irresistible	68·45	Russell and St. George	125·34	Hogue and Lion	142·86	Cornwallis and Dauntless	178·36
Hawke	77·54	Ajax and Royal George	138·83	Edinburgh and Trafalgar, Pembroke	166·67	Blenheim	233·04
Colossus and Frederick William	109·52			Majestic and Donegal	169·12		

IMPROPER ABSENCES.—Average Convictions, 1300·20 per 1,000, against 1411·65 in 1863.

Below the Average.				*Above the Average.*			
Hawke	735·29	Colossus and Frederick William	1011·90	Blenheim	1348·08	Majestic and Donegal	1872·55
Pembroke	980·56	Dauntless and Irresistible	1250·00	Ajax and Royal George	1542·30	Edinburgh and Trafalgar	1976·67
Hogue and Lion	991·25			Cornwallis and Dauntless	1764·22		
Russell and St. George	1005·45						

A comparison between the above and the table at page 13 in the Report for 1863 shows that the ships stationed at Hull, Liverpool, and Leith are still those in which the offence of leave-breaking principally occurs.

MINOR OFFENCES.—Average Convictions, 535·91, per 1,000, against 501·62 in 1863.

The Coast Guard Division still holds the highest position of any in the Fleet in its comparative exemption from this class of offences.

Below the Average.				*Above the Average.*			
Hawke	77·54	Dauntless and Irresistible	422·62	Cornwallis and Dauntless	597·56	Majestic and Donegal	720·59
Blenheim	241·89	Edinburgh and Trafalgar	453·33	Pembroke	711·11	Ajax and Royal George	1290·69
Hogue and Lion	306·12	Russell and St. George	523·16				
Colossus and Frederick William	335·71						

FLOGGED.—Average Number, 2·28 per 1,000, against 3·00 in 1863.

In 1864 this division of the Fleet must have averaged 3,500 men, and of that number only two were corporally punished; the other seven punishments of this description were inflicted on boys.

Below the Average.				*Above the Average.*			
Blenheim	0·00	Dauntless and Irresistible	0·00	Pembroke	2·78	Russell and St. George	5·45
Colossus and Frederick William		Hawke		Edinburgh and Trafalgar	3·33	Majestic and Donegal	9·80
Cornwallis and Dauntless		Hogue and Lion					
		Ajax and Royal George	2·17				

IMPRISONED.—Average Number, 62·22 per 1,000, against 67·73 in 1863.

Below the Average.				*Above the Average.*			
Hawke	26·74	Russell and St. George	38·15	Ajax and Royal George	71·58	Cornwallis and Dauntless	105·69
Edinburgh and Trafalgar	33·33	Pembroke	41·67	Dauntless and Irresistible	83·33	Blenheim	115·04
Colossus and Frederick William	35·71	Hogue and Lion	61·22	Majestic and Donegal	85·78		

In the Second Class for CONDUCT.—Average Number, 9·6 per Cent., against 9·2 per Cent. in 1863.

Below the Average.				*Above the Average.*			
Hawke	4·8	Dauntless and Irresistible	6·8	Ajax and Royal George	11·5	Blenheim	14·5
Colossus and Frederick William	5·0	Pembroke	7·5	Hogue and Lion	12·5	Cornwallis and Dauntless	17·5
Russell and St. George	6·0	Edinburgh and Trafalgar	9·3	Majestic and Donegal	12·7		

IV. THE SQUADRON IN THE MEDITERRANEAN.

INSUBORDINATION and DISRESPECT.—Average Convictions, 188·38 per 1,000, against 152·51 in 1863.

Below the Average.				*Above the Average.*			
Foxhound	84·75	Wanderer	137·93	Hydra	190·91	Racoon	226·00
Weser	87·72	Surprise	144·58	Royal Oak	194·09	Orlando	232·85
Hibernia	88·98	Pelican	146·50	Revenge	197·36	Cockatrice	233·33
Liffey	121·70	Firefly	153·85	Psyche	200·00	Magicienne	242·57
Marlborough	124·00	Phœbe	161·83	Cossack	205·02	Gibraltar	248·46
Chanticleer	132·08			Trident	206·19	*Racer*	263·16
				Procris	217·39	Meeanee	275·00
				Resistance	224·06	Caradoc	301·89

THEFT.—Average Convictions, 12·29 per 1,000, against 10·60 in 1863.

Below the Average.				*Above the Average.*			
Cockatrice	0·00	*Marlborough*	3·41	Orlando	12·64	Caradoc	18·87
Cossack		Royal Oak	3·70	Hibernia	12·71	Resistance	25·94
Procris		Pelican	6·37	Firefly	12·82	Revenge	26·74
Psyche		Gibraltar	7·38	Racoon	16·00	Chanticleer	31·45
Racer		Phœbe	8·30	Liffey	16·23	Magicienne	44·55
Surprise		Hydra	9·09	*Foxhound*	16·95		
Weser		Trident	10·31				
Meeanee	3·33	Wanderer	11·49				

DRUNKENNESS.—Average Convictions, 326·21 per 1,000, against 291·17 in 1863.

Below the Average.				*Above the Average.*			
Procris	0·00	Racoon	260·00	Chanticleer	301·89	Hibernia	415·25
Racer	122·81	Meeanee	268·33	*Marlborough*	311·72	Hydra	436·36
Weser		Psyche	272·73	Cossack	364·02	Firefly	500·00
Wanderer	126·44	Liffey	277·89	Gibraltar	370·23	Orlando	510·83
Surprise	204·82	Pelican	280·25	*Foxhound*	389·83	Caradoc	547·17
Magicienne	252·48	Royal Oak	284·66	Revenge	411·76	Cockatrice	566·67
Phœbe	253·11	Resistance	285·38				
Trident	257·74						

IMPROPER ABSENCES.—Average Convictions, 689·53 per 1,000, against 659·68 in 1863.

Below the Average.				*Above the Average.*			
Wanderer	34·48	Firefly	538·46	*Marlborough*	691·70	Orlando	855·60
Hydra	136·36	Pelican	547·77	Racoon	692·00	Caradoc	1301·89
Trident	206·19	Liffey	551·72	Royal Oak	707·95	Gibraltar	1321·03
Foxhound	271·19	Phœbe	622·41	Surprise	734·94	*Racer*	1614·04
Chanticleer	283·02	Hibernia	627·12	Resistance	761·79	Cockatrice	1833·33
Weser	315·79	Magicienne	636·61	Psyche	763·64		
Revenge	402·41	Cossack	656·90				
Procris	478·26	Meeanee	688·33				

MINOR OFFENCES.—Average Convictions, 1562·45 per 1,000, against 1275·87 in 1863.

Below the Average.				*Above the Average,*			
Psyche	90·91	*Foxhound*	898·31	Revenge	1614·97	Phœbe	2120·33
Wanderer	149·43	Surprise	915·66	Meeanee	1666·67	Resistance	2568·39
Procris	260·87	Chanticleer	937·11	Cossack	1832·64	Gibraltar	3845·02
Cockatrice	300·00	Hydra	1000·00	Trident	1855·67		
Hibernia	385·59	Magicienne	1069·31				
Caradoc	396·22	*Marlborough*	1138·79				
Weser	684·21	Firefly	1230·77				
Racer	824·56	Pelican	1318·47				
Orlando	713·00	Royal Oak	1349·35				
Liffey	776·88	Racoon	1504·00				

FLOGGED.—Average Number, 15·23 per 1,000, against 18·19 in 1863.

Below the Average.				*Above the Average.*			
Cockatrice	0·00	Wanderer	0·00	Racoon	16·00	Phœbe	22·82
Hibernia		*Marlborough*	3·41	*Foxhound*	16·95	Meeanee	23·33
Procris		Royal Oak	5·55	Revenge	17·38	Magicienne	24·75
Psyche		Gibraltar	8·61	Weser	17·54	Chanticleer	25·16
Racer		Hydra	9·09	Caradoc	18·87	Liffey	26·37
Trident		Surprise	12·05	Pelican	19·11	Resistance	30·66
				Cossack	20·92	Firefly	38·46
				Orlando	21·66		

IMPRISONED.—Average Number, 34·68 per 1,000, against 26·50 in 1863.

Below the Average.				*Above the Average.*			
Caradoc	0·00	Chanticleer	12·58	Racoon	36·00	Orlando	45·13
Cockatrice		Weser	17·54	Hydra	36·36	Trident	51·55
Procris		Gibraltar	23·37	Cossack	37·66	Hibernia	59·32
Psyche		Magicienne	24·75	*Marlborough*	39·82	Meeanee	75·00
Racer		Phœbe	24·90	Royal Oak	42·51	Surprise	120·48
Wanderer		Liffey	28·40	Pelican	44·59	Firefly	128·20
Resistance	9·43	*Foxhound*	33·90				
Revenge	10·69						

In the Second Class for CONDUCT.—Average Number, 16·4 per Cent., against 15·7 in 1863.

Below the Average.				*Above the Average.*			
Assurance	3·2	Firefly	12·8	St. George	16·5	Procris	21·7
Wanderer	4·6	Trafalgar	13·4	Orlando	16·6	Phœbe	24·1
Trident	7·2	Chanticleer	13·8	Cockatrice	16·7	Resistance	25·2
Psyche	7·3	Cossack	13·8	Pelican	17·8	Icarus	64·2
Hydra	8·2	Meeanee	14·2	Royal Oak	18·5	Hibernia	No information in the Returns.
Racer	10·0	Magicienne	14·9	Revenge	19·5		
Caradoc	11·3	Foxhound	15·1	Weser	21·5		
Marlborough	11·7	Liffey	15·2				
Racoon	12·0	Gibraltar	16·1				
Surprise	12·0						

V.—THE SQUADRON IN NORTH AMERICA AND THE WEST INDIES.

INSUBORDINATION and DISRESPECT.—Average Convictions, 237·68 per 1,000, against 245·39 in 1863.

Below the Average.				*Above the Average.*			
Terror	73·02	*Barracouta*	184·39	Phæton	242·65	*Greyhound*	350·00
Styx	119·72	*Jason*	187·19	*Duncan*	255·15	*Fawn*	385·54
Cordelia	135·59	Aboukir	191·71	Nimble	267·86	Steady	392·86
Royalist	149·12	Rinaldo	203·95	Challenger	271·32	Cygnet	426·83
Bulldog	151·52	*Immortalité*	214·29	Lily	294·12	Peterel	490·91
Galatea	151·79	Virago	219·86	Pylades	294·87	*Vesuvius*	495·53
Buzzard	156·86	Rosario	222·22	Shannon	323·74	Plover	625·00
Medea	168·07	*Wolverine*	229·30				
Liverpool	177·27						

THEFT.—Average Convictions, 13·00 per 1,000, against 12·20 in 1863.

Below the Average.				*Above the Average.*			
Aboukir	0·00	Terror	0·00	*Jason*	14·78	Phæton	22·05
Barracouta		Buzzard	6·54	*Bulldog*	15·15	Lily	23·53
Cordelia		Pylades	8·55	Cygnet	16·39	Styx	28·17
Immortalité		Peterel	9·09	Steady	17·86	*Greyhound*	28·57
Medea		*Duncan*	9·15	Liverpool	20·45	Shannon	35·97
Nimble		*Vesuvius*	9·35	Virago	21·28	*Wolverine*	38·22
Plover		Galatea	11·16				
Rinaldo		Challenger	11·63				
Rosario		*Fawn*	12·05				
Royalist							

DRUNKENNESS.—Average Convictions, 256·58 per 1,000, against 243·90 in 1863.

Below the Average.				*Above the Average.*			
Bulldog	98·49	*Jason*	177·34	Virago	269·50	Styx	338·03
Shannon	106·24	*Fawn*	180·72	Terror	269·84	Aboukir	415·51
Galatea	118·30	*Duncan*	194·51	*Cordelia*	271·18	Cygnet	443·22
Royalist	122·81	*Wolverine*	197·45	Rosario	287·04	Medea	445·38
Barracouta	127·66			Liverpool	318·18	Challenger	476·74
Lily	129·41	*Greyhound*	200·00	Nimble	320·14	Peterel	518·18
Plover	142·86	Phæton	218·14	Pylades	324·79	Steady	625·00
Immortalité	159·66	Rinaldo	256·58	Buzzard	326·80	*Vesuvius*	700·93

IMPROPER ABSENCES.—Average Convictions, 776·16 per 1,000, against 813·28 in 1863.

Below the Average.				*Above the Average.*			
Royalist	254·39	Terror	482·54	Virago	808·51	Steady	1160·71
Lily	258·82	Medea	546·22	Aboukir	829·02	*Duncan*	1173·91
Greyhound	300·00	*Immortalité*	596·64	*Barracouta*	886·53	*Fawn*	1289·16
Bulldog	446·97	Pylades	598·29	Nimble	910·71	Challenger	1406·98
Liverpool	452·27	Phæton	617·65	Styx	936·62	Galatea	1441·96
Shannon	460·43	Buzzard	705·88	Rosario	1027·78	Plover	1535·71
Rinaldo	460·53	Peterel	709·09	*Cordelia*	1033·90		
				Cygnet	1049·18	*Wolverine*	1675·16
				Jason	1113·30	*Vesuvius*	1187·85

MINOR OFFENCES.—Average Convictions, 1271·27 per 1,000, against 1069·87 in 1863.

Below the Average.				*Above the Average.*			
Terror	120·63	Virago	1014·18	*Barracouta*	1333·33	*Wolverine*	1955·41
Immortalité	315·13	*Greyhound*	1100·00	Phæton	1350·49	Nimble	2000·00
Aboukir	378·29	Buzzard	1117·65	Styx	1478·87	*Bulldog*	2166·67
Cygnet	393·44	*Cordelia*	1118·64	*Duncan*	1670·48	Challenger	2232·56
Medea	394·96	Lily	1176·47	Rinaldo	1835·56	Steady	2517·86
Royalist	473·68	Rosario	1194·44	*Jason*	1931·03	Peterel	3481·82
Galatea	520·09	Shannon	1206·63	Pylades	1944·44	*Vesuvius*	5242·99
Fawn	722·89	Plover	1214·29				
Liverpool	870·45						

FLOGGED.—Average Number, 19·24 per 1,000, against 18·46 in 1863.

Below the Average.				*Above the Average.*			
Cordelia	0·00	Challenger	7·75	Buzzard	19·62	Peterel	36·36
Jason		Rosario	9·26	Aboukir	20·73	*Vesuvius*	37·38
Medea		Liverpool	13·64	Lily	23·53	*Greyhound*	42·86
Royalist		*Barracouta*	14·11	Rinaldo	26·32	Phæton	46·57
Terror		Virago	14·18	Styx	28·17	Cygnet	49·17
Immortalité	4·20	Shannon	16·79	Steady	35·71	Nimble	71·43
Duncan	5·72	Pylades	17·09	*Fawn*	36·14	Plover	160·71
Wolverine	6·37	Galatea	17·86				
Bulldog	7·58						

IMPRISONED.—Average Number, 26·50 per 1,000, against 24·63 in 1863.

Below the Average.				*Above the Average.*			
Lily	0·00	Challenger	15·50	Terror	28·57	Cygnet	49·17
Medea		*Immortalité*	16·80	*Cordelia*	33·90	Galatea	66·96
Nimble		Pylades	17·09	*Barracouta*	35·46	Styx	70·42
Wolverine	6·37	Royalist	17·54	Steady	35·71	Plover	89·29
Buzzard	6·54	Rosario	18·52	Aboukir	36·27	Peterel	136·36
Rinaldo	6·58	Virago	21·28	*Vesuvius*	46·73		
Fawn	12·05	Liverpool	21·73				
Greyhound	14·29	Phæton	24·51				
Shannon	14·39	*Jason*	24·63				
Bulldog	15·15	*Duncan*	26·31				

In the Second Class for CONDUCT.—Average Number, 13·0 per Cent., against 12·8 in 1863.

Below the Average.				*Above the Average.*			
Royalist	6·1	Wolverine	10·1	Liverpool	13·6	Shannon	18·7
Immortalité	6·6	Nile	10·2	Pylades	14·5	Cygnet	19·7
Medea	6·7	Challenger	10·5	Ariadne	14·9	Peterel	20·9
Cordelia	7·0	Buzzard	11·1	Galatea	15·7	Steady	21·4
Barracouta	7·1	Rinaldo	11·2	Duncan	16·0	Landrail	23·1
Terror	7·6	Styx	11·3	Virago	17·0	Plover	25·0
Bulldog	8·8	Lily	11·8	Vesuvius	17·6		
Jason	9·1	Fawn	12·7	Nimble	17·9	Aboukir	No information in the Returns.
Greyhound	9·6	Rosario	13·0	Phæton	18·4		

VI.—THE SQUADRON IN CHINA.

INSUBORDINATION and DISRESPECT.—Average Convictions, 169·39 per 1,000.

The little insubordination in this squadron, compared with most of the other squadrons abroad, is somewhat remarkable. In 1864, the China and East India Squadrons were divided and placed under the separate command of a flag-officer and a commodore, instead of both being under one and the same Commander-in-chief. The China Squadron, it will be seen, is chiefly composed of small vessels, commanded by lieutenants.

Below the Average.				*Above the Average.*			
Princess Charlotte	32·71	*Encounter*	130·44	Barrosa	170·83	Flamer	250·00
Insolent	50·00	Bouncer	138·89	Scylla	172·00	Havoc	281·25
Manilla	50·00	Osprey	142·86	Algerine	176·47	Hesper	283·33
Weasel	57·14	Rifleman	144·74	Leopard	196·00	Staunch	343·75
Ringdove	74·63	Pelorus	152·17	Argus	197·18	Coromandel	382·35
Swallow	82·57	Tartar	155·10	Perseus	210·53	Janus	388·89
Bustard	83·33	Conqueror	155·59	Coquette	214·29	Kestrel	428·57
Hardy	93·75	*Vulcan*	158·33	Grasshopper	218·75	Leven	568·18
Racehorse	101·45	Euryalus	160·00	Haughty	222·22	Cormorant	597·40
Cockchafer	120·00	Adventure	163·00	Rattler	242·86		

THEFT.—Average Convictions, 6·46 per 1,000.

Below the Average.				*Above the Average.*			
Algerine	0·00	Haughty	0·00	Rattler	7·14	Pelorus	17·40
Argus		Havoc		Tartar	8·16	Adventure	22·03
Bouncer		Insolent		Swallow	9·17	Manilla	25·00
Bustard		Janus		Conqueror	11·32	Kestrel	28·57
Cockchafer		Leven		Leopard	12·00	*Racehorse*	28·98
Coquette		Osprey		Scylla	12·00	Hesper	33·33
Cormorant		Princess Charlotte		Perseus	13·16		
Coromandel		Rifleman					
Encounter		*Ringdove*					
Euryalus		Staunch					
Flamer		*Vulcan*					
Grasshopper		Weazel					
Hardy		Barrosa	4·17				

Drunkenness.—Average Convictions, 316·17 per 1,000.

This offence prevailed especially in the ships employed in Japan.

Below the Average.				*Above the Average.*			
Insolent	25·00	Conquror	196·61	Tartar	338·78	Algerine	529·41
Racehorse	86·96	Bustard	222·22	*Ringdove*	343·28	Haughty	555·56
Weazel	114·29	Rifleman	223·68	Hardy	343·75	Euryalus	555·79
Encounter	141·30	Coquette	228·57	Flamer	375·00	Rattler	557·14
Manilla	150·00	Grasshopper	250·00	Leopard	408·00	Havoc	593·75
Vulcan	158·33	Cormorant	272·73	Barrosa	408·83	Staunch	593·75
Princess Charlotte	163·55	Pelorus	282·61	Osprey	414·29	Cockchafer	600·00
Scylla	196·00	Swallow	311·94	Bouncer	416·67	Leven	659·09
Adventure	193·83	Perseus	315·79	Hesper	450·00	Janus	888·89
				Kestrel	485·71	Coromandel	1000·00
				Argus	500·00		

Improper Absences.—Average Convictions, 568·54 per 1,000.

Below the Average.				*Above the Average.*			
Princess Charlotte	168·22	Osprey	385·71	Adventure	625·55	Perseus	901·32
Rifleman	210·53	Pelorus	439·13	Coquette	628·57	Tartar	902·04
Insolent	225·00	Leven	454·55	Cockchafer	640·00	Algerine	941·18
Swallow	238·53	Cormorant	480·52	Manilla	650·00	Rattler	942·86
Kestrel	285·71	*Racehorse*	492·75	Hardy	656·25	*Ringdove*	985·07
Argus	302·82	Euryalus	528·42	Havoc	656·25	Haughty	1083·33
Leopard	332·00	Hesper	550·00	Grasshopper	750·00	Weazel	1142·86
Vulcan	341·67	Conqueror	554·46	Barrosa	787·50	*Encounter*	1510·87
Flamer	343·75	Bouncer	555·56	Scylla	804·00	Staunch	1531·25
Coromandel	382·35	Bustard	555·56	Janus	861·11		

Minor Offences.—Average Convictions, 901·27 per 1,000.

Below the Average.				*Above the Average.*			
Insolent	0·00	Grasshopper	437·50	*Ringdove*	970·15	*Racehorse*	1405·80
Manilla	25·00	Rifleman	486·84	Haughty	1138·89	Euryalus	1442·11
Bustard	55·56	Flamer	531·25	Rattler	1285·71	Scylla	1956·00
Weazel	85·71	Algerine	558·82	Barrosa	1362·50	Pelorus	1991·30
Hardy	125·00	Perseus	565·79	Adventure	1392·07	Cormorant	2103·90
Swallow	146·79	Havoc	625·00				
Princess Charlotte	149·53	Coquette	685·71				
Bouncer	222·22	Leven	704·55				
Encounter	239·13	Tartar	710·20				
Kestrel	342·86	Staunch	750·00				
Argus	345·07	Osprey	757·14				
Vulcan	358·33	Conqueror	785·01				
Cockchafer	360·00	Janus	861·11				
Hesper	366·67	Leopard	864·00				
Coromandel	382·35						

Flogged.—Average Number, 13·93 per 1,000.

Below the Average.				*Above the Average.*			
Bouncer	0·00	Staunch	0·00	Argus	14·08	Grasshopper	31·25
Cockchafer		Swallow		Osprey	14·29	Havoc	31·25
Encounter		Weazel		*Ringdove*	14·93	Rattler	42·86
Flamer		Pelorus	4·35	Scylla	16·00	Coquette	57·14
Hardy		Adventure	4·41	Euryalus	18·95	*Racehorse*	57·96
Haughty		Conqueror	7·07	Perseus	19·74	Coromandel	58·82
Hesper		*Vulcan*	8·33	Rifleman	26·32	Algerine	88·24
Insolent		Leopard	12·00	Bustard	27·28	Leven	90·91
Janus		Tartar	12·24	Kestrel	28·57		
Manilla		Barrosa	12·54				
Princess Charlotte		Cormorant	12·99				

Imprisoned.—Average Number, 42·40 per 1,000.

Below the Average.				*Above the Average.*			
Bouncer	0·00	Swallow	27·52	Haughty	55·56	Coquette	85·71
Bustard		Princess Charlotte	28·04	Coromandel	58·82	Rattler	85·71
Encounter		Argus	28·16	Grasshopper	62·50	*Racehorse*	86·96
Insolent		Barrosa	29·17	Scylla	68·00	Hardy	93·75
Kestrel		Adventure	30·84	Euryalus	69·47	Havoc	93·75
Weazel		Flamer	31·25	Pelorus	69·60	Perseus	111·84
Tartar	8·16	Hesper	33·33	Osprey	71·43	Algerine	117·64
Vulcan	8·33	Cormorant	38·96	*Ringdove*	74·63	Cockchafer	120·00
Conqueror	9·90	Leopard	40·00	Manilla	75·00	Leven	136·36
Rifleman	13·16			Janus	83·33	Staunch	250·00

In the Second Class for CONDUCT.—Average Number, 14·2 per Cent.

Below the Average.				*Above the Average.*			
Bustard	2·7	Hardy	9·3	Rifleman	14·5	Cockchafer	20·0
Weazel	2·9	Ringdove	9·3	Manilla	15·0	Scylla	20·0
Slaney	4·7	Flamer	9·4	Havre	15·6	Janus	22·2
Insolent	5·0	Conqueror	9·8	Coquette	15·7	Leven	22·7
Swallow	5·6	Vulcan	9·9	Tartar	16·3	Rattler	22·9
Princess Charlotte	7·0	Encounter	10·3	Pearl	17·2	Racehorse	23·0
Centaur	8·4	Adventure	11·3	Algerine	17·6	Hesper	23·3
Clown	9·1	Barrosa	12·5	Argus	17·6	Osprey	24·3
Leopard	9·2	Pelorus	13·0	Coromandel	17·6	Haughty	25·0
				Perseus	17·8	Staunch	25·0
				Euryalus	17·9	Kestrel	28·6
				Grasshopper	18·7	Banterer	31·4
				Cormorant	19·5	Bouncer	33·3

VII.—THE SQUADRON IN THE EAST INDIES.

INSUBORDINATION and DISRESPECT.—Average Convictions, 256·43 per 1,000.

Below the Average.				*Above the Average.*			
Princess Royal	148·47	*Hornet*	204·08	Severn	314·29	Vigilant	621·95
Wasp	191·36			Pantaloon	400·00		

THEFT.—Average Convictions, 6·59 per 1,000.

Below the Average.				*Above the Average.*			
Hornet	0·00	Wasp	6·17	*Princess Royal*	10·19	Vigilant	12·20
Pantaloon		Severn	6·59				

DRUNKENNESS.—Average Convictions, 184·58 per 1,000.

Below the Average.				*Above the Average.*			
Wasp	61·73	*Hornet*	183·67	Severn	250·55	Vigilant	439·02
Princess Royal	100·44			Pantaloon	284·62		

IMPROPER ABSENCES.—Average Convictions, exclusive of those in the "Princess Royal," in which there were a number of cases of leave-breaking, while fitting out in England, 544·77 per 1,000.

Below the Average.				*Above the Average.*			
Hornet	408·16	Wasp	530·86	Vigilant	560·98	Pantaloon	776·92
Severn	509·89						

MINOR OFFENCES.—Average Convictions, 1064·60 per 1,000.

Below the Average.				*Above the Average.*			
Princess Royal	724·89	*Hornet*	836·73	Severn	1107·69	Pantaloon	1684·62
				Wasp	1364·20	Vigilant	2024·39

FLOGGED.—Average Number, 21·75 per 1,000.

Below the Average.				*Above the Average.*			
Hornet	0·00	*Princess Royal*	14·56	Severn	30·77	Vigilant	85·37
Wasp	6·17	Pantaloon	15·39				

IMPRISONED.—Average Number, 36·91 per 1,000.

Below the Average.				*Above the Average.*			
Princess Royal	5·82	*Hornet*	20·41	Severn	81·32	Vigilant	85·37
Wasp	12·34	Pantaloon	30·77				

In the Second Class for CONDUCT.—Average Number, 14·8 per Cent.

Below the Average.				*Above the Average.*			
Wasp	8·6	Hornet	11·4	Princess Royal	14·9	Pantaloon	17·7
				Severn	16·5	Vigilant	18·3

VIII.—THE SQUADRON AT THE CAPE OF GOOD HOPE.

INSUBORDINATION and DISRESPECT.—Average Convictions, 191·15 per 1,000 against 210·41 in 1863.

Below the Average.				*Above the Average.*			
Seringapatam	90·91	*Narcissus*	167·25	Rapid	200·00	*Lyra*	258·43
Ariel	150·68			Orestes	214·61	Penguin	320·00
				Valorous	226·60		

THEFT.—Average Convictions, 15·04 per 1,000, against 7·43 in 1863.

Below the Average.				*Above the Average.*			
Rapid	0·00	Orestes	13·70	*Lyra*	22·47	Penguin	40·00
Narcissus	10·45	Valorous	14·78	Seringapatam	36·36		
Ariel	13·70						

DRUNKENNESS.—Average Convictions, 227·43 per 1,000, against 205·95 in 1863.

Below the Average.				*Above the Average.*			
Narcissus	153·31	Orestes	210·05	Rapid	230·00	Seringapatam	300·00
Oriel	205·48	*Lyra*	213·48	Penguin	280·00	Valorous	315·27

IMPROPER ABSENCES.—Average Convictions, 365·49 per 1,000, against 401·49 in 1863.

Below the Average.				*Above the Average.*			
Ariel	136·99	*Lyra*	280·90	Seringapatam	372·73	Valorous	507·39
Penguin	200·00	*Narcissus*	337·98	Orestes	502·28		
Rapid	210·00						

MINOR OFFENCES.—Average Convictions, 775·22 per 1,000, against 944·24 in 1863.

Below the Average.				*Above the Average.*			
Seringapatam	290·91	Rapid	450·00	Valorous	832·51	Orestes	1278·54
Narcissus	414·63			Ariel	1082·19	Penguin	1420·00
				Lyra	1146·07		

FLOGGED.—Average Number, 14·16 per 1,000, against 17·84 in 1863.

Below the Average.				*Above the Average.*			
Ariel Orestes	0·00	Rapid	0·00	Valorous	14·78	Penguin	40·00
		Narcissus	6·96	*Lyra*	33·71	Seringapatam	63·64

IMPRISONED.—Average Number, 33·63 per 1,000, against 25·28 in 1863.

Below the Average.				*Above the Average.*			
Lyra	0·00	Penguin	20·00	Rapid	60·00	Valorous	78·82
Ariel	13·70	Orestes	22·83				
Seringapatam	18·18	*Narcissus*	24·39				

In the Second Class for CONDUCT.—Average Number, 10·4 per Cent., against 12·2 per Cent. in 1863.

Below the Average.				*Above the Average.*			
Gorgon	1·7	Narcissus	8·7	Lyra	15·6	Penguin	18·0
Seringapatam	7·3	Ariel	10·0	Rapid	17·0	Valorous	18·2
Orestes	7·8						

IX.—THE SQUADRON ON THE WEST COAST OF AFRICA.

INSUBORDINATION and DISRESPECT.—Average Convictions, 197·88 per 1·000, against 208·21 in 1863.

Below the Average.				*Above the Average.*			
Vindictive	33·33	Griffon	111·11	Antelope	232·14	Dart	370·37
Mæander	56·94	Lee	120·00	Zebra	258·99	Wye	373·33
Jaseur	72·73	Snipe	137·93	Archer	263·51	Sparrow	574·07
Rattlesnake	78·05	*Philomel*	171·43	*Investigator*	333·33	Mullet	576·92
Ranger	108·69	Pandora	186·44	Speedwell	339·62		

THEFT.—Average Convictions, 10·35 per 1,000, against 11·73 in 1863.

Below the Average.				*Above the Average.*			
Antelope	0·00	Snipe	0·00	Pandora	16·95	Sparrow	37·04
Dart		Vindictive		Jaseur	18·18	Speedwell	37·74
Griffon		Wye		Archer	27·03	Mullet	38·46
Investigator		Zebra		*Philomel*	28·57		
Lee		Mæander	3·56				
Ranger		Rattlesnake	4·88				

DRUNKENNESS.—Average Convictions, 154·59 per 1,000, against 159·52 in 1863.

Below the Average.				*Above the Average.*			
Antelope	35·71	Griffon	92·59	Lee	160·00	Rattlesnake	195·12
Ranger	43·48	Zebra	93·53	Archer	175·68	Wye	200·00
Jaseur	72·73	Mæander	113·88	Pandora	186·44	Dart	203·70
Philomel	85·71	Vindictive	133·33	Speedwell	188·68	*Investigator*	333·33
				Snipe	189·66	Sparrow	333·33
				Mullet	192·31		

IMPROPER ABSENCES.

It is only at the Islands of St. Helena and Ascension where leave can with prudence be given to the crews of the ships on this station. The opportunities of visiting those places are comparatively few in the course of a ship's commission; therefore, as the indulgence of leave is, in this part of the world, the exception, and not the rule as it is elsewhere, no comparison is necessary between the several ships in regard to the improper absences of the men.

MINOR OFFENCES.—Average Convictions, 1340·23 per 1,000, against 1238·12 in 1863.

Below the Average.				*Above the Average*			
Griffon	129·63	*Ranger*	826·09	Pandora	1389·83	Dart	2333·33
Mæander	156·58	Rattlesnake	839·02	Lee	1480·00	Speedwell	2471·70
Vindictive	200·00	*Philomel*	1000·00	Snipe	1482·76	Mullet	2538·46
Antelope	446·43	*Investigator*	1250·00	Zebra	1697·84	Sparrow	2814·81
Wye	733·33			Jaseur	2109·09	Archer	3391·69

FLOGGED.—Average Number, 21·35 per 1,000, against 25·22 in 1863.

Below the Average.				*Above the Average.*			
Griffon	0·00	*Ranger*	0·00	*Philomel*	28·57	Zebra	43·17
Investigator		Snipe		Vindictive	33·33	Jaseur	54·55
Lee		Rattlesnake	4·88	Archer	33·78	Dart	74·07
Mæander		Pandora	16·95	Sparrow	37·04	Speedwell	75·47
Mullet		Antelope	17·86	Wye	40·00		

IMPRISONED.—Average Number, 5·17 per 1,000, against 24·63 in 1863.

No comparison is necessary here between the several ships of the squadron, inasmuch as imprisonment (except at St. Helena and Ascension) is not one of the summary punishments that can be resorted to on the Coast of Africa in the case of European defaulters.

In the Second Class for CONDUCT.—Average Number, 13·1 per Cent., against 12·6 in 1863.

Below the Average.				*Above the Average.*			
Rattlesnake	3·4	Speedwell	11·3	Pandora	13·6	Lee	20·0
Griffon	3·7	Wye	12·0	Archer	14·2	Antelope	21·4
Mæander	5·3	Zebra	12·2	Snipe	15·5	Sparrow	22·2
Vindictive	6.7			Jaseur	18·2	Espoir	26·0
Investigator	8·0			Mullet	19·2	Torch	34·8
Ranger	10·9			*Philomel*	19·3	Dart	37·0

X.—THE SQUADRON IN THE PACIFIC.

INSUBORDINATION and DISRESPECT.—Average Convictions, 169·86 per 1,000, against 184·08 in 1863.

Below the Average.				*Above the Average.*			
Forward	40·00	Leander	144·42	Charybdis	197·04	Devastation	232·00
Sutlej	85·06			*Clio*	201·39	Shearwater	336·54
Bacchante	109·80	Tribune	165·22	Cameleon	216·67	Grappler	366·67
				Alert	226·03	Columbine	383·18

THEFT.—Average Convictions, 7·91 per 1,000, against 16·79 in 1863.

Below the Average.				*Above the Average.*			
Alert	0·00	Shearwater	0·00	Devastation	8·00	Leander	10·94
Cameleon		*Bacchante*	3·92	Charybdis	9·85	*Clio*	55·55
Columbine		Tribune	4·35	Sutlej	10·37	Grappler	66·67
Forward							

DRUNKENNESS.—Average Convictions, 254·83 per 1,000, against 239·95 in 1863.

Below the Average.				*Above the Average.*			
Forward	120·00	*Clio*	215·28	Alert	280·82	Charybdis	354·68
Bacchante	145·10	Devastation	240·00	Cameleon	325·00	Grappler	500·00
Sutlej	178·42	Leander	247·26	Shearwater	336·54	Columbine	532·71
Tribune	213·04						

IMPROPER ABSENCES.—Average Convictions, 432·14 per 1,000, against 511·16 in 1863.

Below the Average.				*Above the Average.*			
Forward	200·00	Sutlej	350·62	Tribune	465·22	Cameleon	716·67
Bacchante	254·90	Columbine	392·52	Charybdis	482·76	Devastation	728·00
Grappler	266·67	Alert	404·11	*Clio*	569·44	Shearwater	980·77
Leander	326·04						

MINOR OFFENCES.—Average Convictions, 945·05 per 1,000, against 852·15 in 1863.

Below the Average.				*Above the Average.*			
Forward	0·00	Devastation	568·00	Shearwater	1403·85	*Clio*	2069·44
Cameleon	300·00	Leander	844·64				
Grappler	466·67	Tribune	891·30	Alert	1835·62	Columbine	3158·88
Sutlej	508·80	Charybdis	935·96				
Bacchante	509·80						

FLOGGED.—Average Number, 10·82 per 1,000, against 18·44 in 1863.

Below the Average.				*Above the Average.*			
Sutlej	0·00	Shearwater	0·00	*Clio*	13·89	Davastation	24·00
Cameleon		*Bacchante*	7·84	Alert	20·55	Charybdis	24·63
Forward		Leander	8·75	Tribune	21·74	Columbine	28·04
Grappler							

IMPRISONED.—Average Number, 13·74 per 1,000, against 12·29 in 1863.

Below the Average.				*Above the Average.*			
Alert	0·00	*Bacchante*	3·92	Sutlej	16·60	Grappler	33·33
Clio		Leander	6·56				
Columbine		Devastation	8·00	Cameleon	25·00	Tribune	60·87
Forward		Charybdis	9·85				
Shearwater							

In the Second Class for CONDUCT.—Average Number, 12·6 per Cent., against 13·5 in 1863.

Below the Average.				*Above the Average.*			
Forward	4·0	Nereus	7·1	Columbine	13·1	Charybdis	16·7
Hecate	4·2	Cameleon	7·5	Devastation	13·6	Bacchante	18·5
Naiad	5·0	Shearwater	8·7	Alert	14·4	Tribune	20·4
Sutlej	6·8	Leander	9·2	Clio	15·9	Grappler	23·3

The crews of the three large frigates, Sutlej, Leander, and Bacchante (but especially the Sutlej), have been remarkably exempt from crime and punishment.

XI.—THE SQUADRON ON THE SOUTH-EAST COAST OF AMERICA.

INSUBORDINATION and DISRESPECT.—Average Convictions, 190·10 per 1,000, against 218·52 in 1863.

Below the Average.				*Above the Average.*			
Doterel	31·25	Stromboli	164·29	Alecto	231·58	Triton	337·66
Curlew	144·44	Egmont	177·78	Spider	242·42		
Sheldrake	156·25	*Forte*	183·10				
Satellite	159·09	*Bombay*	190·06				

THEFT.—Average Convictions, 7·99 per 1,000, against 13·81 in 1863.

Below the Average.				*Above the Average.*			
Alecto	0·00	Sheldrake	0·00	Curlew	11·11	Stromboli	28·57
Doterel		Spider		*Bombay*	11·70	Triton	38·96
Egmont		*Forte*	7·04				
Satellite							

DRUNKENNESS.—Average Convictions, 331·47 per 1,000, against 304·63 in 1863.

Below the Average.				*Above the Average.*			
Sheldrake	93·75	Doterel	312·50	Curlew	333·33	Spider	424·24
Bombay	140·35	Alecto	326·32	Egmont	366·67	Triton	467·53
Satellite	195·45			*Forte*	376·76	Stromboli	485·71

IMPROPER ABSENCES.—Average Convictions, 609·43 per 1,000, against 727·86 in 1863.

Below the Average.				*Above the Average.*			
Curlew	144·44	Alecto	578·95	*Bombay*	733·92	Sheldrake	843·75
Stromboli	342·86	Doterel	593·75	Triton	753·25	Satellite	854·55
Spider	363·64			*Forte*	816·90	Egmont	1011·11

MINOR OFFENCES.—Average Convictions, 1373·80 per 1,000, against 913·89 in 1863.

Below the Average.				*Above the Average.*			
Doterel	187·50	Triton	661·34	*Forte*	1556·34	Curlew	2022·22
Spider	242·42	Satellite	750·00	*Bombay*	1847·95	Alecto	2494·74
Sheldrake	375·00	Stromboli	764·29	Egmont	1900·00		

FLOGGED.—Average Number, 10·38 per 1,000, against 14·62 in 1863.

Below the Average.				*Above the Average.*			
Alecto	0·00	Sheldrake	0·00	Curlew	11·11	Stromboli	50·00
Doterel		Spider		Triton	12·99		
Egmont		*Forte*	7·04				
Satellite		*Bombay*	8·77				

IMPRISONED.—Average Number, 15·97 per 1,000, against 13·00 in 1863.

Below the Average.				*Above the Average.*			
Curlew	0·00	*Bombay*	8·77	Triton	51·95	Egmont	77·78
Doterel		Satellite	9·09				
Sheldrake		Alecto	10·53				
Spider		Stromboli	14·29				
Forte	7·04						

In the Second Class for CONDUCT.—Average Number, 14·2 per Cent., against 16·4 in 1863.

Below the Average.				*Above the Average.*			
Doterel	6·2	Bombay	9·3	Egmont	14·4	Curlew	15·6
Sheldrake	6·2	Alecto	9·5	Stromboli	15·0	Forte	26·9
Satellite	8·2	Spider	12·1				
Triton	9·1						

XII.—THE SQUADRON IN AUSTRALIA.

INSUBORDINATION AND DISRESPECT.—Average Convictions, 249·78 per 1,000, against 260·00 in 1863.

Below the Average.				*Above the Average.*			
Curaçoa	203·44	Miranda	246·84	Falcon	256·76	Eclipse	300·00
Esk	241·55			Harrier	291·97	*Salamander*	324·56

Theft.—Average Convictions, 12·14 per 1,000, against 17·33 in 1863.

Below the Average.				*Above the Average.*			
Curaçoa	0·00	Harrier	0·00	Falcon	13·51	Esk	24·15
				Salamander	17·54	Eclipse	28·57
				Miranda	18·99		

Drunkenness.—Average Convictions, 249·78 per 1,000, against 276·00 in 1863.

Below the Average.				*Above the Average.*			
Curaçoa	117·48	Miranda	208·86	*Salamander*	263·16	Esk	343·00
				Eclipse	271·43	Falcon	351·35
				Harrier	321·17		

Improper Absences.—Average Convictions, 592·37 per 1,000, against 540·00 in 1863.

Below the Average.				*Above the Average.*			
Miranda	353·16	Falcon	560·81	Eclipse	628·57	Esk	874·40
Harrier	277·37			Curaçoa	650·43	*Salamander*	947·37

Minor Offences.—Average Convictions, 1260·19 per 1000, against 1696·00 in 1863.

Below the Average.				*Above the Average.*			
Miranda	373·42	Esk	1217·39	*Salamander*	2017·54	Falcon	2608·11
Harrier	802·92	Curaçoa	1232·09				
Eclipse	928·57						

Flogged.—Average Number, 26·02 per 1,000, against 29·33 in 1863.

Below the Average.				*Above the Average.*			
Salamander	8·77	Curaçoa	17·19	Eclipse	28·57	Miranda	37·97
Esk	14·49			Falcon	33·78	Harrier	51·10

Imprisoned.—Average Number, 55·51 per 1,000, against 112·00 in 1863.

Below the Average.				*Above the Average.*			
Salamander	26·32	Falcon	47·30	Miranda	82·28	Esk	86·96
Eclipse	28·57	Curaçoa	51·57				
Harrier	29·20						

In the Second Class for Conduct.—Average Number 16·3 per Cent, against 15·3 in 1863.

Below the Average.				*Above the Average.*			
Curaçoa	11·5	Salamander	13·3	Falcon	17·6	Miranda	24·7
Eclipse	12·9	Harrier	15·3	Esk	20·8		

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5. The general abstract in the Appendix facilitates a comparison being made between the amount of crime and punishment in the two years 1863 and 1864. The comparison shows, on the whole, an improvement in the conduct of the men during the latter year. There is one thing, however, in connection with this subject which mere statistics fail to convey to the mind, and that is, the degree of the offences recorded. For example, "insubordination," ranges from the commonest disregard of superior authority to acts or expressions of an almost mutinous description, yet all are classed under one general heading, and it would be difficult to alter this arrangement without making the tables inconveniently large. But the chief objection to a system of sub-division is this, that the classification would vary according to the judgment of the compiler of these tables, instead of being arranged on simple and fixed principles (as it is at present) with which every commanding officer in the service may make himself acquainted by referring to their Lordships' order on the subject. A thorough scrutiny of all the warrants for punishment since 1862, shows that in 1864 the cases of gross insubordination were not only remarkably few in themselves, but especially so when compared with the two preceding years. To the improvement in this respect, the reduction of corporal punishments may reasonably be attributed. In 1862, one in every 54 persons (including boys) was flogged; in 1863, the proportion fell to one in every 65, and in 1864 to one in every 84.

6. The following tables show the differences in the proportions of crime and punishment between the years 1863 and 1864. To appreciate the value of these differences, it will be necessary for their Lordships to consider the full numbers or proportions on which they occur.

OFFENCES AND PUNISHMENTS.	Difference in the Proportion per 1,000 in Favour of 1863.	Difference in the Proportion per 1,000 in Favour of 1864.
I.—The "Home" Division, other than the Channel Squadron, &c.		
Total number of convictions		151·64
Insubordination and disrespect	2·95	—
Theft		3·37
Drunkenness		16·30
Improper absences		97·79
Minor offences		31·38
Corporally punished		4·38
Imprisoned		12·09
II.—The Channel Squadron.		
Total number of convictions		595·81
Insubordination and disrespect	0·99	—
Theft		1·37
Drunkenness		54·63
Improper absences		338·12
Minor offences		238·16
Corporally punished		2·58
Imprisoned		11·78
III.—The Coast-guard Ships.		
Total number of convictions		68·58
Insubordination and disrespect	6·16	—
Theft		0·66
Drunkenness	5·41	—
Improper absences		111·45
Minor offences	34·29	—
Corporally punished		0·72
Imprisoned		5·51
IV.—Mediterranean Squadron.		
Total number of convictions	362·24	—
Insubordination and disrespect	35·87	—
Theft	1·69	—
Drunkenness	35·04	—
Improper absences	29·85	—
Minor offences	286·58	—
Corporally punished		2·96
Imprisoned	8·18	—

OFFENCES AND PUNISHMENTS.	Difference in the Proportion per 1,000 in Favour of 1863.	Difference in the Proportion per 1,000 in Favour of 1864.
V.—North America and West India Squadron.		
Total number of convictions	155·26	—
Insubordination and disrespect		7·71
Theft	0·80	—
Drunkenness	12·68	—
Improper absences		37·12
Minor offences	201·40	—
Corporally punished	0·78	—
Imprisoned	1·27	—
VI.—China and East India Squadrons Combined.		
Total number of convictions		421·80
Insubordination and disrespect		39·88
Theft		5·80
Drunkenness		14·85
Improper absences		91·70
Minor offences		273·28
Corporally punished		7·48
Imprisoned	17·86	—
VII.—The Cape of Good Hope Squadron.		
Total number of convictions		169·75
Insubordination and disrespect		19·26
Theft	7·61	—
Drunkenness	21·48	—
Improper absences	36·00	—
Minor offences		169·02
Corporally punished		3·68
Imprisoned	8·35	—
VIII.—The West Coast of Africa Squadron.		
Total number of convictions	7·21	—
Insubordination and disrespect		10·93
Theft		1·38
Drunkenness		4·93
Improper absences		14·33
Minor offences	102·11	—
Corporally punished		3·87
Imprisoned		19·46

OFFENCES AND PUNISHMENTS.	Difference in the Proportion per 1,000 in Favour of	
	1863.	1864.
IX.—The Squadron in the Pacific.		
Total number of convictions - - -	- -	0·58
Insubordination and disrespect - - -	- -	14·22
Theft - - - - - - -	- -	8·88
Drunkenness - - - - - -	14·88	—
Improper absences - - - - -	- -	79·02
Minor offences - - - - - -	92·90	—
Corporally punished - - - - -	- -	7·62
Imprisoned - - - - - -	1·45	—
X.—The Squadron on the South-East Coast of America.		
Total number of convictions - - -	347·82	—
Insubordination and disrespect - - -	- -	28·42
Theft - - - - - - -	- -	5·82
Drunkenness - - - - - -	26·84	—
Improper absences - - - - -	- -	118·43
Minor offences - - - - - -	459·91	—
Corporally punished - - - - -	- -	4·24
Imprisoned - - - - - -	2·97	—
XI.—The Squadron in Australia.		
Total number of convictions - - -	- -	430·78
Insubordination and disrespect - - -	- -	10·22
Theft - - - - - - -	- -	5·19
Drunkenness - - - - - -	- -	26·22
Improper absences - - - - -	52·37	—
Minor offences - - - - - -	- -	435·81
Corporally punished - - - - -	- -	3·31
Imprisoned - - - - - -	- -	56·49
XII.—The whole of the Home Force.		
Total number of convictions - - -	- -	217·57
Insubordination and disrespect - - -	3·03	—
Theft - - - - - - -	- -	2·49
Drunkenness - - - - - -	- -	18·97
Improper absences - - - - -	- -	148·85
Minor offences - - - - - -	- -	58·86
Discharged with disgrace, or as objectionable	- -	10·38

OFFENCES AND PUNISHMENTS.	Difference in the Proportion per 1,000 in Favour of	
	1863.	1864.
XII.—The whole of the Home Force—*continued.*		
Corporally punished - - - - - -	- -	3·36
Imprisoned - - - - - -	- -	10·58
Confined in cells on board - - - -	- -	5·27
Disrated - - - - - - -	- -	2·91
Deprived of badges - - - - -	- -	3·69
Reduced to the second class - - -	- -	10·45
XIII.—The whole Force Abroad.		
Total number of convictions - - -	55·13	—
Insubordination and disrespect - - -	- -	2·15
Theft - - - - - - - -	- -	1·69
Drunkenness - - - - - -	15·05	—
Improper absences - - - - -	- -	28·60
Minor offences - - - - - -	86·79	—
Discharged with disgrace, or as objectionable	- -	3·55
Corporally punished - - - - -	- -	3·44
Imprisoned - - - - - -	5·61	—
Confined in cells on board - - -	1·21	—
Disrated - - - - - - -	- -	0·94
Deprived of badges - - - - -	3·88	—
Reduced to the second class - - -	- -	4·66
XIV.—The whole Force at Home and Abroad.		
Total number of convictions - - -	- -	61·06
Insubordination and disrespect - - -	0·99	—
Theft - - - - - - - -	- -	2·04
Drunkenness - - - - - -	1·67	—
Improper absences - - - - -	- -	84·92
Minor offences - - - - - -	27·78	—
Discharged with disgrace, or as objectionable	- -	6·58
Corporally punished - - - - -	- -	3·30
Imprisoned - - - - - -	- -	1·59
Confined in cells on board - - -	- -	1·64
Disrated - - - - - - -	- -	1·69
Deprived of badges - - - - -	0·72	—
Reduced to the second class - - -	- -	7·04

Punishments Under Warrant.

7. The proportion of corporal punishments and imprisonments will be found in the General Abstract in the Appendix; but, in addition to these, it may be convenient, for future reference, that I should here record the proportions per 1,000 of the average mean force, subjected to the following punishments, which are also awarded either by sentence of a court-martial or by warrant under the hand of the commanding officer:—

—	1863.	1864.
Confined in cells on board	42·46	40·82
Disrated	17·65	15·96
Deprived of badges	34·39	35·11
Reduced to the second class	81·07	74·03
Discharged with disgrace, or as objectionable	10·72	4·14

8. It will be understood that most of the above punishments are accumulative, that is to say, two or more of them may be awarded to the same offender for the same offence.

Desertions.

9. In 1864, the proportion of men and boys marked "*Run*" on the books of the ships in the several divisions of the Fleet was as follows:—

—	Per Cent. of the Average Mean Force employed for the whole Year.
West Coast of Africa	0·32
Mediterranean	0·51
Cape of Good Hope	0·88
China	1·76
East Indies	1·85
North America and West Indies	3·21
"Home"	3·71
Channel	4·43
Coast-guard Ships	5·44
South-East Coast of America	6·31
Pacific	7·58
Australia	9·80
The whole Force at Home	4·13
The whole Force Abroad	2·61
The whole Force at Home and Abroad	3·26

10. Upwards of 23 per cent. of those marked "*Run*" were apprehended, or voluntarily returned to their duty, so that the loss to the service in 1864 from desertion amounted to 2·59 per cent. of the average mean force borne for the whole year, against 2·10 per cent. in 1863.

Royal Marines.

11. The marines form, generally, about one-seventh of the crews of ships. The abstract of their offences at the several head quarters on shore is a fair criterion of their conduct when embarked. As a rule, they are remarkably exempt from acts of insubordination; their principal failings are leave-breaking and minor offences. It will be worth while to compare the abstract referred to with the general abstract of the Navy, which immediately precedes it in the Appendix, and it will then be seen that the convictions per 1,000 of the mean force vary as much in the different divisions as on the different naval stations.

COURTS-MARTIAL ON MEN AND BOYS.*

12. In 1864 there was a remarkable reduction in the number of convictions of men and boys by courts-martial, compared with the numbers in 1862 and 1863. For example :—

In 1862 there were 141 convictions,

In 1863 there were 140 convictions, and

In 1864 there were 97 convictions.

13. In the last year (1864) 106 men and boys were tried, of whom nine were acquitted, viz. :—

Petty Officers	Tried	9
	Convicted	4
	Acquitted	5
Seamen &c.	Tried	66
	Convicted	63
	Acquitted	3
Boys	Tried	2
	Convicted	2
	Acquitted	0
Non-commissioned Officers, R. M.	Tried	3
	Convicted	3
	Acquitted	0
Private Marines	Tried	26
	Convicted	25
	Acquitted	1

PENAL SERVITUDE.

14. In 1864, 19 men were sentenced by courts-martial to penal servitude for various periods from three to 10 years each. In the 16 following cases the sentences were carried into effect: —

Edward Woodcock, Ordinary Seaman, H. M. S. Majestic; for striking his superior officer, and subsequently deserting, five years.

H. M. S. Shannon, R. Harris, A. B., John Simpson, A. B., B. M‘Dougall, ordinary seamen; taking a ship's boat, and deserting in the same, five years each. J. W. Dune, leading seaman, John Callow A. B., J. Kelly, John Pomeroy, Thomas Chalmers, Henry Clarke, John M‘Avoy, and George Wood, ordinary seamen, same charge, three years each.

Joseph Beecroft, ordinary seaman, H. M. S. Dauntless; for striking an additional captain of H. M. S. Cumberland, five years.

Thomas John Turner, ordinary seaman, H. M. S. Vesuvius, for an indecent assault three years.

Robert Bertie and J. Heesom, servants, H. M. S. Excellent; for an unnatural crime, 10 years each.

In the three remaining cases, namely :—

W. Savage, ordinary seaman, H. M. S. Devastation; Henry Hall and Alfred Lee, ordinary seamen, H. M. S. Sutlej; who, for desertion, were sentenced to seven years each, their Lordships commuted their sentences to 18 months imprisonment with hard labour.

COURTS-MARTIAL ON OFFICERS.

15. In the year 1864, 96 officers were tried by courts-martial, of whom 94 were convicted, and the remaining two (one a naval lieutenant, and the other a lieutenant of marines) were acquitted. Many of the accused were found guilty on two or more charges, as will be seen by the number of crimes and offences on which convictions were had, namely :—

Uncleanness	3
Theft	1
Desertion	5
Offences against Discipline	27
Drunkenness	48
Improper absence	24
Sleeping on watch	3
Neglect of duty	5
Falsifying books or accounts	3
TOTAL Number of Crimes and Offences	119

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* For Abstract of Trials, *vide* pp. 68, 69.

16. So also had several of the prisoners who were convicted two or more punishments each awarded them for their offences, for I find in the 94 sentences—

5	discharges with disgrace.
13	imprisonments.
36	dismissals from the service.
28	reprimands.
27	dismissals from ship.
39	forfeitures of seniority; and
1	deprivation of acting warrant.
149	Total number of punishments.

17. In 10 out of the 94 convictions, their Lordships were pleased to commute or remit the sentences.

18. In addition to the 96 trials before referred to, there were three trials for running Her Majesty's ships aground, and one for the total loss of a gunboat on the north coast of the Netherlands. In the latter case there was a full acquittal, but in the other three cases more or less blame was attributed to the officers responsible for the navigation.

19. The following table shows the number of Officers in each rank convicted by Naval Courts-Martial (exclusive of trials relative to the loss or stranding of ships), in the years 1862, 1863, and 1864:—

Rank of Officer.	Number Convicted.		
	1862.	1863.	1864.
Captain	1	1	—
Commander	- -	- -	1
Lieutenant	11	8	9
Sub-Lieutenant	3	2	4
Midshipman	5	7	10
Staff Commander, or Master	3	3	2
Second Master	2	2	3
Master's Assistant	1	2	3
Gunner	10	5	7
Boatswain	4	9	9
Carpenter	6	3	5
Surgeon	2	1	—
Assistant Surgeon	1	2	1
Paymaster	1	1	3
Assistant Paymaster	5	6	5
Clerk	2	1	2
Assistant Clerk	- -	- -	1
Chief Engineer	1	3	1
Engineer and Assistant Engineer	8	34	28
Marine Officer	- -	1	—
Totals	66	91	94

20. In conclusion, it may be observed, that the more complete organization and more permanent character given to the naval force by the continuous service system, have been productive of the best effects in reducing the number of offences; and it may be hoped that the careful training which the boys (who will now almost entirely supply the annual waste of seamen) receive in the training ships, will tend to still further improvement. This improvement would be checked if an emergency required the entry of men for short periods, and without reference to their former character and habits, and the proportions of crime and punishment in that case, would, as a matter of course, be increased, not perhaps to the extent that prevailed some years since, for in the general advancement of society which has taken place in this generation, there is probably no class that has made more progress in education, intelligence, and morals than the seamen of this country.

I have, &c.

(signed) W. HICKMAN,
Secretary and Paymaster, R.N.

The Secretary of the
Admiralty.

APPENDIX.

LIST OF THE SHIPS IN THE FOLLOWING STATISTICAL TABLES.

Distinguishing No. of the Ship.	Name of Ship.	Distinguishing No. of the Ship.	Name of Ship.	Distinguishing No. of the Ship.	Name of Ship.
124	Aboukir.	13 243	Clio.	24	Excellent.
1	Achilles.	166	Clown.	269	Falcon.
84	Active.	95	Cockatrice.	133	Fawn.
2 158	Adventure.	167	Cockchafer.	97	Firefly.
73	Ajax.	75	Colossus.	25	Fisgard.
255	Alecto.	244	Columbine.	174	Flamer.
239	Alert.	168	Conqueror.	26	Formidable.
159	Algerine.	169	Coquette.	260	Forte.
217	Antelope	14 130	Cordelia.	246	Forward.
218	Archer.	170	Cormorant.	27	Fox.
160	Argus.	76	Cornwallis.	98	Foxhound.
125	Ariadne.	171	Coromandel.	75	Frederick William.
208	Ariel.	96	Cossack.	28 134	Galatea.
3	Asia.	15	Cumberland.	29	Geyser.
4 92	Assurance.	266	Curaçoa.	99	Gibraltar.
66	Aurora.	257	Curlew.	30	Gladiator.
240	Bacchante.	131	Cygnet.	209	Gorgon.
161	Banterer.	219	Dart.	247	Grappler.
126	Barracouta.	16	Dasher.	175	Grasshopper.
162	Barrosa.	76 77	Dauntless.	135	Greyhound.
67	Black Prince.	17	Dee.	221	Griffon.
74	Blenheim.	68	Defence.	176	Hardy.
5 256	Bombay.	245	Devastation.	270	Harrier.
6	Boscawen.	87	Dædalus.	31	Hastings.
163	Bouncer.	81	Donegal.	177	Haughty.
85	Brilliant.	258	Doterel.	178	Havoc.
7	Brisk.	18	Dromedary.	79	Hawke.
8	Britannia.	20	Duke of Wellington.	248	Hecate.
9 127	Bulldog.	19 132	Duncan.	70	Hector.
164	Bustard.	88	Eagle.	179	Hesper.
128	Buzzard.	267	Eclipse.	100	Hibernia.
10	Cadmus.	69	Edgar.	32	Highflyer.
11	Cambridge.	78	Edinburgh.	33	Himalaya.
241	Camelion.	259	Egmont.	80	Hogue.
12	Canopus.	21	Enchantress.	202	Hornet.
93	Caradoc.	172	Encounter.	101	Hydra.
86	Castor.	22	Enterprise.	102	Icarus.
165	Centaur.	268	Esk.	136	Immortalité.
129	Challenger.	23 220	Espoir.	34	Implacable.
94	Chanticleer.	173	Euryalus.	35	Impregnable.
242	Charybdis.			36	Indus.
				37	Industry.
				180	Insolent.

Distinguishing No. of the Ship.	Name of Ship.
222	Investigator.
77	Irresistible.
223	Isis.
38	Jackal.
181	Janus.
224	Jaseur.
137	Jason.
182	Kestrel.
138	Landrail.
249	Leander.
225	Lee.
183	Leopard.
184	Leven.
103	Liffey.
139	Lily.
80	Lion.
140	Liverpool.
39 210	Lyra.
104	Magicienne.
81	Majestic.
185	Manilla.
105	Marlborough.
141	Medea.
40	Medusa.
106	Meeanee.
41	Megæra.
271	Miranda.
226	Mæander.
227	Mullet.
250	Naiad.
211	Narcissus.
251	Nereus.
142	Nile.
143	Nimble.
212	Orestes.
107	Orlando.
42	Orontes.
43	Osborne.
186	Osprey.
228	Pandora.
203	Pantaloon.
187	Pearl.
108	Pelican.
188	Pelorus.
82	Pembroke.
213	Penguin.
189	Perseus.
144	Peterel.
145	Phæton.
229	Philomel.
109	Phœbe.
45	Pigmy.
146	Plover.
89	President.
71	Prince Consort.
190	Princess Charlotte.
44 204	Princess Royal.
110	Procris.
111	Psyche.
147	Pylades.
112	Queen.
191	Racehorse.
46 113	Racer.
47 114	Racoon.
48 230	Ranger.
214	Rapid.
192	Rattler.
231	Rattlesnake.
49	Research.
115	Resistance.
116	Revenge.
193	Rifleman.
148	Rinaldo.
194	Ringdove.
149	Rosario.
50	Royal Adelaide.
73	Royal George.
117	Royal Oak.
51	Royal Sovereign.
150	Royalist.
83	Russell.
83 118	St. George.
52	St. Vincent.
53 272	Salamander.
54	Salamis.
261	Satellite.
55	Saturn.
195	Scylla.
215	Seringapatam.
205	Severn.
151	Shannon.
56	Sharpshooter.
252	Shearwater.
57	Sheerness, Naval Barracks at.
262	Sheldrake.
196	Slaney.
233	Sparrow.
234	Speedwell.
263	Spider.
197	Staunch.
152	Steady.
264	Stromboli.
153	Styx.
58	Supply.
119	Surprise.
253	Sutlej.
198	Swallow.
59	Tamar.
199	Tartar.
154	Terror.
235	Torch.
78 120	Trafalgar.
254	Tribune.
121	Trident.
90	Trincomalee.
265	Triton.
60	Urgent.
216	Valorous.
155	Vesuvius.
61	Victoria.
62	Victoria and Albert.
63	Victory.
206	Vigilant.
236	Vindictive.
156	Virago.
200	Vulcan.
122	Wanderer.
72	Warrior.
207	Wasp.
201	Weazel.
64	Wellesley.
123	Weser.
91	Winchester.
65 157	Wolverine.
237	Wye.
238	Zebra.

(OFFENCES.)

Station, "HOME," other than the Channel Squadron, Coast Guard Ships, and Drill Ships.

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number, Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
1	Achilles - - - - -	15 Sept. -	31 Dec. -	628	S.	470	–	–	–	–	–	–	2	–	17	–	1	–	27	–	242	–	234	–	523
2 } 158 }	Adventure (Troop Ship) - -	1 Jan. -	30 June -	136	S. C. M.	179 1	– –	– –	– –	– –	– –	– –	– 1	– –	20 –	– –	4 –	– –	13 –	– –	38 –	– –	111 –	– –	186 1
3	Asia (Guard Ship of the Reserve at Portsmouth).	1 Jan. -	31 Dec. -	1,165	S.	829	711·59	–	–	–	–	2	8	6·87	39	33·48	9	7·73	45	38·63	572	490·99	161	138·20	836
4 } 92 }	Assurance - - - -	11 May -	30 Sept. -	74	S.	160	–	–	–	–	–	–	–	–	7	–	–	–	6	–	49	–	98	–	160
5 } 256 }	Bombay - - - - -	22 Mar. -	30 June -	661	S.	561	–	–	–	–	–	–	–	–	28	–	4	–	8	–	231	–	293	–	564
6	Boscawen (Training Ship for Boys at Southampton).	1 Jan. -	31 Dec. -	544	S.	404	742·65	–	–	–	–	–	8	14·71	61	112·13	4	7·36	14	25·74	106	194·85	219	402·57	412
7	Brisk - - - - -	26 Aug. -	31 Dec. -	227	S.	167	–	–	–	–	–	–	–	–	21	–	2	–	18	–	35	–	98	–	174
8	Britannia (Training Ship for Cadets at Dartmouth).	1 Jan. -	31 Dec. -	240	S.	323	1345·83	–	–	–	–	–	–	–	33	137·50	1	4·17	24	100·00	203	845·83	76	316·67	337
9 } 127 }	Bulldog - - - - -	14 Mar. -	30 June -	173	S.	130	–	–	–	–	–	–	–	–	7	–	1	–	5	–	31	–	87	–	131
10	Cadmus - - - - -	14 Dec. -	31 Dec. -	210	S.	32	–	–	–	–	–	–	–	–	–	–	–	–	–	–	32	–	–	–	32
11	Cambridge (Gunnery Ship at Devonport).	1 Jan. -	31 Dec. -	559	S. C. M.	328 1	588·55 –	– –	– –	– –	– –	– –	– 1	1·79 –	8 –	14·31 –	– 1	1·79 –	20 –	35·78 –	194 –	347·05 –	111 –	198·57 –	333 2
12	Canopus (Receiving Ship at Devonport).	1 Jan. -	31 Dec. -	438	S. C. M.	1,227 1	2803·65 –	– –	– –	– –	– –	– –	1 –	2·28 –	24 –	54·79 –	7 1	18·26 –	82 1	189·50 –	783 –	1787·67 –	359 –	819·63 –	1,256 2
13 } 243 }	Clio - - - - -	5 July -	30 Sept. -	327	S.	144	–	–	–	–	–	–	–	–	10	–	6	–	7	–	64	–	59	–	146
14 } 130 }	Cordelia - - - - -	23 June -	30 Sept. -	109	S.	69	–	–	–	–	–	–	–	–	3	–	–	–	2	–	32	–	32	–	69

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
				Penal Servitude.			Corporal.		Imprisonment.																			
			Death.	Number.	Years.	Discharged with Disgrace.	Number. (a)	Lashes. (a)	Number.	Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
1	Achilles - - - - - -	S.	–	–	–	–	–	–	–	–	2	2	1	3	–	464	–	–	–	–	–	59	9·4	9	–	–	- - - -	11
2 158	Adventure - - - - -	S.	–	–	–	–	–	–	4	154	2	1	–	5	–	172	–	–	–	–	–	17	12·5	66	–	–	Proportions cast at No. 158.	1
		C. M.	–	–	–	–	–	–	1	365	–	–	–	–	1													
3	Asia - - - - - -	S.	–	–	–	–	1	24	43	1,374	22	3	12	60	8	792	0·86	20·60	36·91	1179·40	–	39	3·3	–	1	24	- - - -	25
4 92	Assurance - - - - -	S.	–	–	–	–	–	–	1	6	–	1	2	3	–	155	–	–	–	–	–	2	2·7	45	–	–	Proportions cast at No. 92.	1
5 256	Bombay - - - - - -	S.	–	–	–	–	1	48	1	28	5	–	2	1	1	553	–	–	–	–	–	63	9·5	52	–	–	Proportions cast at No. 256.	10
6	Boscawen - - - - -	S.	–	–	–	–	9	192	1	42	38	1	–	2	2	361	16·54	352·94	1·85	77·21	–	2	0·4	–	9	192	- - - -	16
7	Brisk - - - - - -	S.	–	–	–	–	–	–	–	–	–	1	–	10	–	165	–	–	–	–	–	15	6·6	78	–	–	- - - -	–
8	Britannia - - - - -	S.	–	–	–	–	2	36	7	106	–	–	15	11	–	310	8·34	150·00	29·17	441·67	–	14	5·8	–	2	36	- - - -	–
9 127	Bulldog - - - - - -	S.	–	–	–	–	–	–	–	–	1	–	1	3	1	126	–	–	–	–	–	11	6·4	14	–	–	Proportions cast at No. 127.	2
10	Cadmus - - - - - -	S.	–	–	–	–	–	–	2	42	–	–	–	–	–	32	–	–	–	–	–	33	15·7	–	–	–	- - - -	–
11	Cambridge - - - - -	S.	–	–	–	–	–	–	8	169	12	4	11	11	–	316	–	–	16·10	1608·23	–	7	1·3	–	–	–	- - - -	–
		C. M.	–	–	–	–	–	–	1	730	–	1	1	1														
12	Canopus - - - - - -	S.	–	–	–	–	–	–	9	321	19	3	7	28	2	1,192	2·28	13·70	22·83	1566·21	2·28	61	13·9	–	–	–	- - - -	32
		C. M.	–	–	–	1	1	6	1	365																		
13 243	Clio - - - - - -	S.	–	–	–	–	1	48	–	–	6	–	3	20	–	134	–	–	–	–	–	40	12·2	42	–	–	Proportions cast at No. 243.	4
14 130	Cordelia - - - - - -	S.	–	–	–	–	–	–	1	42	–	–	1	–	–	67	–	–	–	–	–	6	5·5	50	–	–	Proportions cast at No. 130.	–

(OFFENCES.) Station, "HOME," other than the Channel Squadron, Coast Guard Ships, and Drill Ships—*continued.*

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
15	Cumberland (Guard Ship of the Reserve, at Sheerness).	1 Jan. -	31 Dec. -	640	S.	481	751·56	–	–	–	–	–	6	9·38	20	31·25	1	1·56	54	84·37	410	640·62	25	39·06	516
16	Dasher (employed at the Channel Islands).	1 Jan. -	31 Dec. -	171	S.	58	339·18	–	–	–	–	–	3	17·54	7	40·94	–	–	11	64·33	34	198·83	5	29·24	60
17	Dee (Store Ship) - - -	1 Jan. -	31 Dec. -	56	S.	79	1410·71	–	–	–	–	–	–	–	2	35·71	–	–	8	142·86	68	1214·29	4	71·43	82
18	Dromedary (Store Ship) - -	1 Jan. -	31 Dec. -	48	S.	47	979·17	–	–	–	–	–	–	–	2	41·67	1	20·83	4	83·33	28	583·33	12	250·00	47
19 132	Duncan - - - - -	6 Jan. -	31 Mar. -	817	S.	713	–	–	–	–	–	–	–	–	26	–	–	–	26	–	216	–	447	–	715
20	Duke of Wellington (Receiving Ship, at Portsmouth - -	1 Jan. -	31 Dec. -	534	S. C. M.	1,335 1	2501·87 –	– –	– –	– –	– –	– –	2 1	5·62 –	16 –	29·96 –	2 –	3·75 –	28 –	52·43 –	1,023 –	1915·73 –	281 –	526·22 –	1,352 1
21	Enchantress - - - -	1 Jan. -	31 Dec. -	37	S.	16	432·43	–	–	–	–	–	1	27·03	–	–	–	–	–	–	15	405·40	–	–	16
22	Enterprise - - - -	5 May -	31 Dec. -	101	S.	429	6402·98	–	–	–	–	–	2	29·85	28	417·91	1	14·93	11	164·18	243	3626·86	148	2208·96	433
23 220	Espoir - - - - -	7 Nov. -	31 Dec. -	60	S.	14	–	–	–	–	–	–	–	–	2	–	–	–	1	–	5	–	7	–	15
24	Excellent (Gunnery Ship, at Portsmouth).	1 Jan. -	31 Dec. -	814	S. C. M.	851 2	1047·91 –	– –	– –	– 2	– –	– –	5 –	6·14 –	19 –	23·34 –	8 –	9·83 –	53 –	65·11 –	416 –	511·06 –	369 –	453·32 –	870 2
25	Fisgard (Flag Ship, at Woolwich).	1 Jan. -	31 Dec. -	253	S.	429	1696·45	–	–	–	–	1	34	134·39	10	39·53	–	–	14	55·34	358	1415·02	20	79·05	437
26	Formidable (Flag Ship, at Sheerness).	1 Jan. -	31 Dec. -	211	S.	350	1658·77	–	–	–	–	–	7	33·17	37	175·36	2	9·48	31	146·92	237	1123·22	55	260·66	369
27	Fox (Store Ship) - - -	1 Jan. -	31 Dec. -	83	S.	159	1915·66	–	–	–	–	–	–	–	22	265·06	–	–	25	301·20	92	1108·43	32	385·54	171
28 134	Galatea - - - - -	1 April -	30 Sept. -	455	S.	541	–	–	–	–	–	1	2	–	37	–	2	–	23	–	360	–	124	–	549
29	Geyser - - - - -	1 Jan. -	31 Dec. -	148	S.	362	2445·95	–	–	–	–	–	4	27·03	13	87·84	2	13·51	30	202·71	234	1581·08	95	641·89	378
30	Gladiator - - - - -	16 Mar. -	31 Dec. -	200	S.	635	3993·71	–	–	–	–	–	1	6·29	49	308·18	1	6·29	26	163·52	113	710·69	448	2817·61	638

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																		
15	Cumberland	S.	–	–	–	–	–	–	17	780	2	3	14	20	3	463	–	–	26·56	1218·75	–	18	2·8	–	–	–	- - - -	21
16	Dasher	S.	–	–	–	–	2	72	7	280	–	–	2	12	–	54	11·70	421·05	40·94	1637·43	–	10	5·9	28	1	24	- - - -	3
17	Dee	S.	–	–	–	–	–	–	3	86	–	–	4	1	–	79	–	–	53·57	1535·71	–	6	10·7	55	–	–	- - - -	4
18	Dromedary	S.	–	–	–	–	–	–	4	112	–	1	1	2	–	40	–	–	83·33	2333·33	–	5	10·4	127	–	–	- - - -	3
19 132	Duncan	S.	–	–	–	–	–	–	7	135	9	1	5	13	–	692	–	–	–	–	–	118	14·4	36	–	–	Proportions cast at No. 132.	7
20	Duke of Wellington	S.	–	–	–	–	–	–	43	1,660	4	5	19	48	3	1,321	–	–	82·40	3449·44	–	81	15·2	–		–	- - - -	75
		C. M.	–	–	–	–	–	–	1	182	–	1																
21	Enchantress	S.	–	–	–	–	–	–	1	42	–	–	1	1	–	16	–	–	27·03	1135·14	–	2	5·4	52	–	–	- - - -	2
22	Enterprise	S.	–	–	–	–	–	–	8	304	1	–	1	8	1	415	–	–	119·40	4537·31	–	10	9·9	45	–	–	- - - -	14
23 220	Espoir	S.	–	–	–	–	–	–	–	–	–	–	–	2	–	13	–	–	–	–	–	4	6·7	27	–	–	- - - -	–
24	Excellent	S.	–	–	–	–	3	54	11	363	32	3	11	20	2	829	3·69	66·34	13·51	445·94	–	14	1·7	–	3	54	- - - -	18
		C. M.	–	2	20																							
25	Fisgard	S.	–	–	–	–	1	9	32	1,045	5	2	6	25	11	384	3·95	35·58	126·45	4130·43	–	Not stated		–	1	9	- - - -	49
26	Formidable	S.	–	–	–	–	–	–	9	444	16	2	2	12	–	332	–	–	42·65	2104·27	–	12	5·7	–	–	–	- - - -	10
27	Fox	S.	–	–	–	–	–	–	5	210	–	1	6	10	–	156	–	–	60·24	2530·12	–	13	15·7	86	–	–	- - - -	4
28 134	Galatea	S.	–	–	–	1	4	138	9	392	11	4	8	30	–	519	–	–	–	–	–	68	14·9	72	1	24	Proportions cast at No. 134.	10
29	Geyser	S.	–	–	–	–	1	36	11	502	–	3	8	7	1	348	6·76	243·24	74·32	3391·89	–	26	17·6	80	1	36	- - - -	1
30	Gladiator	S.	–	–	–	–	1	30	3	35	3	3	3	12	–	627	6·29	188·68	18·87	220·13	–	13	8·2	143	1	30	- - - -	5

(OFFENCES.) Station, " HOME," other than the Channel Squadron, Coast Guard Ships, and Drill Ships—*continued.*

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
31	Hastings (Flag Ship, at Queenstown).	1 Jan.	31 Dec.	210	S.	216	1028·57	–	–	–	–	–	–	–	22	104·76	–	–	20	95·24	129	614·29	51	242·86	222
32	Highflyer	15 Dec.	31 Dec.	225	S.	38	–	–	–	–	–	–	–	–	–	–	–	–	1	–	35	–	2	–	38
33	Himalaya (Troop Ship)	1 Jan.	31 Dec.	185	S.	402	2172·97	–	–	–	–	–	1	5·41	25	135·14	2	10·81	33	178·38	273	1475·68	77	416·22	411
34	Implacable (Training Ship for Boys, at Devonport).	1 Jan.	31 Dec.	559	S.	755	1350·63	–	–	–	–	–	5	8·94	22	39·36	5	8·94	6	10·73	62	110·91	655	1171·74	755
35	Impregnable (Training Ship for Boys, at Devonport).	1 Jan.	31 Dec.	819	S.	491	599·51	–	–	–	–	4	9	10·99	48	58·61	17	20·76	11	13·43	38	46·40	364	444·44	491
36	Indus (Guard Ship of the Reserve, at Devonport).	1 Jan.	31 Dec.	1,173	S. C. M.	680 1	580·56 –	– –	– –	– –	– –	– –	– –	– –	48 1	41·77 –	2 –	1·72 –	39 –	33·25 –	485 –	413·47 –	124 –	105·71 –	698 1
37	Industry (Store Ship)	1 Jan.	31 Dec.	53	S.	48	905·66	–	–	–	–	–	–	–	2	37·74	1	18·87	2	37·74	28	528·30	15	283·02	48
38	Jackal	1 Jan.	8 Feb.	50	S.	2	–	–	–	–	–	–	–	–	–	–	–	–	1	–	2	–	–	–	3
39 210	Lyra	1 Jan.	31 Mar.	89	S.	43	–	–	–	–	–	–	–	–	7	–	1	–	2	–	4	–	29	–	43
40	Medusa	1 Jan.	31 Dec.	55	S.	74	1345·45	–	–	–	–	–	–	–	–	–	–	–	3	54·55	64	1163·64	8	145·45	75
41	Megæra (Troop Ship)	1 Jan.	3 Mar.	143	S.	65	–	–	–	–	–	–	1	–	3	–	–	–	9	–	53	–	4	–	70
42	Orontes (Troop Ship)	1 Jan.	31 Dec.	182	S.	394	2164·84	–	–	–	–	–	–	–	28	153·85	7	38·46	14	76·92	133	730·77	212	1164·84	394
43	Osborne	1 Jan.	31 Dec.	77	S.	54	701·30	–	–	–	–	–	1	12·99	3	38·96	–	–	12	155·84	36	467·53	3	38·96	55
44 204	Princess Royal	15 Feb.	31 Mar.	786	S.	307	–	–	–	–	–	–	–	–	10	–	2	–	4	–	220	–	75	–	311
45	Pigmy	1 Jan.	31 Dec.	22	S.	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
46 113	Racer	22 June	30 Sept.	105	S.	106	–	–	–	–	–	–	–	–	4	–	–	–	2	–	86	–	14	–	106
47 114	Racoon	1 July	30 Sept.	251	S.	103	–	–	–	–	–	–	–	–	9	–	1	–	8	–	8	–	79	–	105
48 230	Ranger	1 Mar.	31 Mar.	54	S.	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	5
49	Research	11 Mar.	31 Dec.	110	S.	444	4988·76	–	–	–	–	–	1	11·24	26	292·13	–	–	26	292·13	73	820·22	325	3651·68	451

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS. Death.	Penal Servitude. Number.	Penal Servitude. Years.	Discharged with Disgrace.	Corporal. Number. (a)	Corporal. Lashes. (a)	Imprisonment. Number.	Imprisonment. Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Average per 1,000 Men and Boys, per Year. Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.	Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys. Number.	(a) Including Boys. Lashes.	REMARKS.	Total Desertions.
31	Hastings	S.	–	–	–	–	–	–	2	56	4	–	1	7	–	210	–	–	9·52	266·66	–	not stat d		–	–	–	- - -	3
32	Highflyer	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	38	–	–	–	–	–	31	13·8	–	–	–	- - -	1
33	Himalaya	S.	–	–	–	–	2	48	3	132	–	3	4	13	–	391	10·81	259·46	16·22	713·51	–	28	15·1	190	1	24	- - -	1
34	Implacable	S.	–	–	–	–	8	186	–	–	15	1	1	–	3	733	14·31	332·77	–	–	–	not stated		–	8	186	- - -	2
35	Impregnable	S.	–	–	–	1	12	253	1	28	24	1	6	4	4	465	14·65	308·91	1·22	34·19	1·22	2	0·2	–	12	253	- - -	11
36	Indus	S.	–	–	–	–	–	–	–	–	15	1	19	36	–	658	–	–	0·85	311·17	–	22	1·9	–	–	–	- - -	16
		C.M.	–	–	–	–	–	–	1	365	–	–	–	–	1													
37	Industry	S.	–	–	–	1	–	–	1	28	–	–	3	3	–	44	–	–	18·87	528·30	18·87	2	3·8	174	–	–	- - -	2
38	Jackal	S.	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	1	2·0	–	–	–	- - -	1
39 210	Lyra	S.	–	–	–	–	1	36	–	–	–	1	1	2	–	38	–	–	–	–	–	10	11·2	67	1	36	Proportions cast at No. 210.	–
40	Medusa	S.	–	–	–	–	–	–	7	179	–	–	3	9	–	68	–	–	127·27	3254·55	–	8	14·5	43	–	–	- - -	–
41	Megæra	S.	–	–	–	–	–	–	6	170	–	–	1	2	–	57	–	–	–	–	–	18	12·6	21	–	–	- - -	2
42	Orontes	S.	–	–	–	–	2	60	8	299	13	4	10	16	2	359	10·99	329·67	43·97	1642·86	–	27	14·8	171	2	60	- - -	3
43	Osborne	S.	–	–	–	–	–	–	3	84	–	–	3	6	–	49	–	–	38·96	1090·91	–	2	2·6	55	–	–	- - -	2
44 204	Princess Royal	S.	–	–	–	–	1	18	–	–	5	–	1	12	–	302	–	–	–	–	–	92	11·7	9	1	18	Proportions cast at No. 204.	1
45	Pigmy	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	- none -		35	–	–	- - -	–
46 113	Racer	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	106		–	–	–	–	6	5·7	43	–	–	Proportions cast at No. 113.	8
47 114	Racoon	S.	–	–	–	–	2	84	–	–	2	1	4	5	–	98	–	–	–	–	–	30	11·9	33	2	84	Proportions cast at No. 114.	1
48 230	Ranger	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	3	5·6	2	–	–	Proportions cast at No. 230.	–
49	Research	S.	–	–	–	–	–	–	18	566	4	1	14	24	1	407	–	–	202·25	6359·55	–	17	15·5	44	–	–	- - -	6

(OFFENCES.) Station, "HOME," other than the Channel Squadron, Coast Guard Ships, and Drill Ships—*continued.*

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
50	Royal Adelaide (Flag Ship, at Devonport).	1 Jan. -	31 Dec. -	273	S. C. M.	656 2	2410·26 –	– –	– –	– –	– –	– –	12 –	43·96 –	34 1	128·21 –	– 1	3·66 –	39 –	142·86 –	329 –	1205·13 –	263 –	963·37 –	677 2
51	Royal Sovereign - - -	7 July -	31 Dec. -	192	S.	207	2202·13	–	–	–	–	–	2	21·28	10	106·38	2	21·28	16	170·21	132	1404·26	50	531·92	212
52	St. Vincent (Training Ship for Boys, at Portsmouth).	1 Jan. -	31 Dec. -	748	S.	315	421·12	–	–	–	–	2	8	10·70	21	28·08	11	14·71	22	29·41	121	161·76	132	176·47	317
53 272	Salamander - - - -	1 Jan. -	31 Mar. -	122	S. C. M.	125 1	– –	– –	– –	– –	– –	– –	– 1	– –	8 –	– –	– –	– –	2 –	– –	38 –	– –	79 –	– –	127 1
54	Salamis - - - - -	4 May -	31 Dec. -	52	S.	123	3617·65	–	–	–	–	–	–	–	9	264·71	–	–	13	382·35	72	2117·65	41	1205·88	135
55	Saturn (Guard Ship, at Milford)	1 Jan. -	31 Dec. -	61	S.	7	–	–	–	–	–	–	–	–	1	–	–	–	3	–	6	–	–	–	10
56	Sharpshooter - - - -	29 Sept. -	31 Dec. -	73	S.	20	–	–	–	–	–	–	–	–	3	–	1	–	–	–	11	–	5	–	20
57	Sheerness, R. N. Barracks at -	1 Jan. -	31 Dec. -	175	S.	433	2474·29	–	–	–	–	–	4	22·86	31	177·14	3	17·14	48	274·29	268	1531·43	121	691·43	475
58	Supply (Store Ship) - - -	1 Jan. -	31 Dec. -	43	S.	74	1720·93	–	–	–	–	–	1	23·26	7	162·79	–	–	6	139·53	62	1441·86	4	93·01	80
59	Tamar (Troop Ship) - - -	1 Jan. -	31 Dec. -	185	S.	610	3297·30	–	–	–	–	–	1	5·41	63	340·54	6	32·43	57	308·11	174	940·54	312	1686·49	613
60	Urgent (Troop Ship) - -	27 July -	31 Dec. -	141	S.	74	–	–	–	–	–	–	–	–	14	–	–	–	3	–	41	–	18	–	76
61	Victoria - - - - -	1 Nov. -	31 Dec. -	944	S.	530	–	–	–	–	–	–	–	–	9	–	–	–	21	–	183	–	320	–	533
62	Victoria and Albert (The Royal Yacht).	1 Jan. -	31 Dec. -	134	S.	16	–	–	–	–	–	–	–	–	–	–	1	–	2	–	6	–	8	–	17
63	Victory (Flag Ship, at Portsmouth)	1 Jan. -	31 Dec. -	313	S.	434	1386·58	–	–	–	–	3	2	6·39	16	51·12	4	12·78	37	118·21	275	878·56	118	376·96	455
64	Wellesley (Guard Ship and Training Ship for Boys, at Chatham).	1 Jan. -	31 Dec. -	437	S.	291	665·90	–	–	–	–	–	3	6·86	8	18·31	5	11·44	19	43·48	115	263·16	150	343·25	300
65 157	Wolverine - - - -	8 May -	30 Sept. -	220	S.	522	–	–	–	–	–	–	2	–	26	–	5	–	25	–	261	–	216	–	535
	TOTALS - - -			*18,380	–	20,197	1572·24	–	–	2	–	13	143	11·13	1,087	84·62	138	10·74	1,123	87·42	10,293	801·26	7,884	613·73	20,683

* The average mean force borne for the whole year was 12,846, and on that number the final proportions are cast.

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number	Lashes.		
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																		
50	Royal Adelaide	S.	–	–	–	–	–	–	27	1,286	15	1	7	28	2	612	3·66	175·82	106·23	7384·62	3·66	30	11·0	–	–	–	- - -	3
		C. M.	–	–	–	1	1	48	2	730																		
51	Royal Sovereign	S.	–	–	–	–	–	–	5	234	2	2	1	4	1	198	–	–	53·19	2489·36	–	25	13·0	2	–	–	- - -	3
52	St. Vincent	S.	–	–	–	–	14	309	3	112	–	2	11	15	5	273	18·72	413·10	4·01	149·73	–	6	0·8	–	14	309	- - -	13
53 } 272 }	Salamander	S.	–	–	–	–	–	–	–	–	–	–	1	1	–	124	–	–	–	–	–	13	10·7	80	–	–	Proportions cast at No. 272.	1
		C. M.	–	–	–	–	–	–	1	365	–	–	–	–	1													
54	Salamis	S.	–	–	–	–	1	36	2	70	1	3	2	6	–	118	29·41	1058·82	58·82	2058·82	–	6	11·5	58	–	–	- - -	3
55	Saturn	S.	–	–	–	–	–	–	3	56	–	–	–	–	–	4	–	–	–	–	–	1	1·6	–	–	–	- - -	1
56	Sharpshooter	S.	–	–	–	–	–	–	–	–	–	1	–	1	–	18	–	–	–	–	–	5	6·8	44	–	–	- - -	2
57	Sheerness, R. N. Barracks at	S.	–	–	–	–	–	–	9	308	6	1	9	17	–	418	–	–	51·43	1760·00	–	20	11·4	–	–	–	- - -	8
58	Supply	S.	–	–	–	–	–	–	1	28	–	2	5	3	–	69	–	–	23·26	651·16	–	2	4·7	88	–	–	- - -	2
59	Tamar	S.	–	–	–	–	1	36	6	205	9	11	9	26	–	574	5·41	194·59	32·43	1108·11	–	41	22·2	207	–	–	- - -	9
60	Urgent	S.	–	–	–	–	–	–	1	28	–	–	–	1	–	72	–	–	–	–	–	9	6·4	55	–	–	- - -	3
61	Victoria	S.	–	–	–	–	–	–	1	42	3	4	5	3	–	526	–	–	–	–	–	118	12·5	19	–	–	- - -	11
62	Victoria and Albert	S.	–	–	–	–	–	–	–	–	–	1	1	1	1	14	–	–	–	–	–	- none -		5	–	–	- - -	–
63	Victory	S.	–	–	–	–	1	10	23	867	19	2	5	14	3	395	3·19	31·95	73·45	2769·65	–	28	8·9	–	1	10	- - -	7
64	Wellesley	S.	–	–	–	4	7	138	9	294	14	1	11	13	2	267	16·02	315·79	20·59	672·77	9·15	3	0·7	–	7	138	- - -	3
65 } 157 }	Wolverine	S.	–	–	–	–	1	24	1	28	9	2	4	9	1	511	–	–	–	–	–	22	10·0	34	1	24	Proportions cast at No. 157.	19
	TOTALS - - -		–	2	20	9	81	1,979	395	16,876	350	93	290	662	63	19,349	6·31	154·06	30·75	1313·72	0·70	1,397	8·0	–	70	1,571	- - -	476
	Deduct Boys - - -						70	1,571																			* Recovered - - -	143
	Men - - -						11	408																			Lost to the Service - - -	333

* Including those who, having deserted from ships abroad, were apprehended in this country, and punished from the guard ships.

(OFFENCES)

Station, ‘ The CHANNEL SQUADRON.”

Distinguishing Number of Ship.	NAME of SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
66	Aurora - - - - - -	1 Jan. -	31 Dec. -	477	S.	1,308	2742·14	–	–	–	–	2	2	4·19	89	186·58	9	18·87	68	142·56	532	1115·50	620	1299·79	1,322
67	Black Prince - - - - -	1 Jan. -	31 Dec. -	646	S.	1,691	2619·20	–	–	–	–	–	8	12·38	90	140·87	8	12·38	83	128·48	767	1187·31	763	1181·11	1,719
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
68	Defence - - - - - -	1 Jan. -	31 Dec. -	425	S.	1,324	3115·29	–	–	–	–	1	2	4·71	65	152·94	6	14·12	101	237·65	603	1418·82	574	1350·59	1,352
69	Edgar - - - - - -	1 Jan. -	31 Dec. -	708	S.	2,481	3508·47	–	–	–	–	2	15	22·60	155	218·95	4	8·47	154	217·51	1,045	1475·99	1,149	1622·88	2,524
					C. M.	3	–	–	–	–	–	–	1	–	–	–	2	–	–	–	–	–	–	–	3
70	Hector - - - - - -	12 Jan. -	31 Dec. -	460	S.	1,255	2816·14	–	–	–	–	–	8	17·94	103	230·94	–	2·24	63	141·26	724	1623·32	393	881·17	1,291
					C. M.	1	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1
71	Prince Consort - - - -	12 Jan. -	31 Dec. -	525	S.	1,296	2546·17	–	–	–	–	–	9	17·68	74	145·38	9	17·68	70	137·52	569	1117·88	591	1161·10	1,322
72	Warrior - - - - - -	1 Jan. -	22 Nov. -	647	S.	1,589	2749·13	–	–	–	–	–	4	6·92	63	109·00	11	19·03	70	121·11	791	1368·51	654	1131·49	1,593
		TOTALS - -		3,888*	–	10,949	2889·63	–	–	–	–	5	49	12·93	640	168·91	50	13·19	609	160·73	5,031	1327·79	4,744	1252·05	11,128

* The average mean force borne for the whole year was 3,789, and on that number the final proportions are cast.

(PUNISHMENTS.)

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS. Death.	Penal Servitude. Number.	Penal Servitude. Years.	Discharged with Disgrace.	Corporal. Number. (a)	Corporal. Lashes. (a)	Imprisonment. Number.	Imprisonment. Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Average per 1,000 Men and Boys, per Year. Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.	Number and Per-centage of Men and Boys in 2d Class for Conduct. Number	Per-centage	Number of Days at Sea.	(a) Including Boys. Number.	(a) Including Boys. Lashes.	REMARKS.	Total Desertions.
66	Aurora	S.	–	–	–	2	1	36	12	421	24	4	12	25	1	1,264	2·96	75·47	25·16	882·59	4·19	41	8·6	90	1	36	- - -	11
67	Black Prince	S.	–	–	–	1	5	168	26	1,115	38	6	29	50	3	1,624	7·74	260·62	41·79	1865·33	1·55	98	15·2	74	1	36	- - -	23
		C. M.	–	–	–	–	–	–	1	90	–	1																
68	Defence	S.	–	–	–	–	6	164	32	1,137	39	6	11	60	1	1,260	14·12	385·88	75·29	2675·29	–	100	23·5	78	4	94	- - -	5
69	Edgar	S.	–	–	–	2	13	426	66	2,767	69	16	17	103	6	2,376	19·77	635·59	97·46	5326·27	4·24	188	26·5	81	9	282	- - -	42
		C. M.	–	–	–	1	1	24	3	1,004	–	–	–	1	1													
7	Hector	S.	–	–	–	1	3	108	33	1,470	16	6	12	40	2	1,209	8·97	349·78	76·23	4114·35	4·48	72	15·7	61	2	72	- - -	26
		C. M.	–	–	–	1	1	48	1	365	–																	
71	Prince Consort	S.	–	–	–	–	4	164	24	968	67	7	27	67	8	1,223	7·86	322·20	47·18	1901·77	–	86	16·4	63	–	–	- - -	36
72	Warrior	S.	–	–	–	–	–	–	17	772	45	8	14	19	3	1,490	–	–	29·41	1335·64	–	78	12·1	66	–	–	- - -	25
	TOTALS		–	–	–	8	34	1,138	215	10,109	298	54	122	365	25	10,446	8·97	300·34	56·74	2667·99	2·11	663	17·1	–	17	520	- - -	168
																											Recovered	49
	Deduct Boys						17	520																				
																											Lost to the Service	119
	Men						17	618																				

(OFFENCES.)

Station, "The COAST GUARD SHIPS and their TENDERS."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
73	Ajax and Royal George - -	1 Jan. -	31 Dec. -	461	S.	1,416	3071·58	–	–	–	–	–	4	8·68	52	112·80	2	4·34	64	138·83	711	1542·30	595	1290·67	1,428
74	Blenheim - - - - - -	1 Jan. -	31 Dec. -	339	S.	626	1846·61	–	–	–	–	–	6	17·70	53	156·34	2	5·90	79	233·04	457	1348·08	82	241·89	679
75	Colossus and Frederick William -	1 Jan. -	31 Dec. -	420	S.	628	1495·24	–	–	–	–	–	3	7·14	18	42·86	3	7·14	46	109·52	425	1011·90	141	335·71	636
76	Cornwallis and Dauntless - -	1 Jan. -	31 Dec. -	246	S.	644	2617·89	–	–	–	–	–	1	4·06	30	121·95	3	12·19	44	178·86	434	1764·22	147	597·56	659
77	Dauntless and Irresistible - -	1 Jan. -	31 Dec. -	336	S. C. M.	629 1	1875·00 –	– –	– –	– –	– –	– –	7 –	20·83 –	44 1	133·93 –	3 –	8·93 –	23 –	68·45 –	420 –	1250·00 –	142 –	422·62 –	639 1
78	Edinburgh and Trafalgar - -	1 Jan. -	31 Dec. -	300	S.	785	2616·67	–	–	–	–	–	3	10·00	20	66·67	–	–	50	166·67	593	1976·67	136	453·33	802
79	Hawke - - - - - -	1 Jan. -	31 Dec. -	374	S.	359	906·42	–	–	–	–	–	–	–	19	50·80	–	–	29	77·54	275	735·29	29	77·54	352
80	Hogue and Lion - - -	1 Jan. -	31 Dec. -	343	S.	542	1580·17	–	–	–	–	–	3	8·75	68	198·25	4	11·66	49	142·86	340	991·25	105	306·12	569
81	Majestic and Donegal - -	1 Jan. -	31 Dec. -	408	S. C. M.	1,183 1	2901·96 –	– –	– –	– –	– –	– –	15 1	39·22 –	74 1	183·82 –	4 –	9·80 –	69 –	169·12 –	764 –	1872·55 –	294 –	720·59 –	1,220 2
82	Pembroke - - - -	1 Jan. -	31 Dec. -	360	S.	679	1886·11	–	–	–	–	–	1	2·78	39	108·33	4	11·11	60	166·67	353	980·56	256	711·11	713
83	Russell and St. George - -	1 Jan. -	31 Dec. -	367	S.	654	1782·02	–	–	–	–	–	8	21·80	57	155·31	5	13·62	46	125·34	369	1005·45	192	523·16	677
	TOTALS - - -			3,954	–	8,127	2055·39	–	–	–	–	–	52	13·15	476	120·38	30	7·59	559	141·38	5,141	1300·20	2,119	535·91	8,377

(PUNISHMENTS.)

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
				Penal Servitude.			Corporal.		Imprisonment.																			
			Death.	Number.	Years.	Discharged with Disgrace.	Number. (a)	Lashes. (a)	Number.	Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
73	Ajax and Royal George	S.	–	–	–	–	1	12	33	996	24	2	15	52	–	1,317	2·17	26·03	71·58	2160·52	–	53	11·5	23	1	12	At Kingstown	12
74	Blenheim	S.	–	–	–	–	–	–	39	1,295	35	1	13	32	–	600	–	–	115·04	3820·06	–	49	14·5	–	–	–	At Milford	4
75	Colossus and Frederick William	S.	–	–	–	–	–	–	15	546	12	6	15	23	–	582	–	–	35·71	1200·00	–	21	5·0	22	–	–	At Weymouth	7
76	Cornwallis and Dauntless	S.	–	–	–	–	–	–	26	713	28	1	9	31	–	604	–	–	105·69	2893·37	–	43	17·5	27	–	–	At Hull	21
77	Dauntless and Irresistible	S. C. M.	– –	– 1	– 5	–	–	–	28	1,035	15	8	20	31	1	598	–	–	83·33	3080·36	–	23	6·8	19	–	–	At Southampton	26
78	Edinburgh and Trafalgar	S.	–	–	–	–	1	24	10	374	3	3	10	22	–	777	3·33	80·00	33·33	1246·67	–	28	9·3	22	1	24	At Leith	47
79	Hawke	S.	–	–	–	–	–	–	10	303	8	1	5	11	–	320	–	–	26·74	810·16	–	18	4·8	–	–	–	At Queenstown	6
80	Hogue and Lion	S.	–	–	–	–	–	–	21	851	30	5	6	26	3	487	–	–	61·22	2481·05	–	43	12·5	18	–	–	At Greenock	30
81	Majestic and Donegal	S. C. M.	– –	– 1	– 5	–	4	120	35	1,236	19	9	5	38	8	1,099	9·80	294·12	85·78	3029·41	–	52	12·7	5	4	120	At Liverpool	48
82	Pembroke	S.	–	–	–	–	1	36	15	504	26	–	10	17	2	628	2·78	100·00	41·67	1400·00	–	27	7·5	–	–	–	At Harwich	5
83	Russell and St. George	S.	–	–	–	–	2	60	14	540	11	3	7	19	–	628	5·45	163·49	38·15	1471·39	–	22	6·0	21	1	24	At Falmouth	9
	TOTALS		–	2	10	–	9	252	246	8,393	211	39	115	302	14	7,640	2·28	63·73	62·22	2122·66	–	379	9·6	–	7	180	- - -	215
		Deduct Boys					7	180																			Recovered	52
		Men					2	72																			Lost to the Service	163

(OFFENCES.)

Station, " The DRILL SHIPS at HOME."

Distinguishing Number of Ship.	NAME of SHIP.	For what Period (1864). From	For what Period (1864). To	Average Number of Men and Boys borne.	CONVICTIONS. Whether Summarily or by Court-Martial.	CONVICTIONS. Number of	CONVICTIONS. Average per 1,000 borne, per Year.	Offences of the 1st Degree. Mutiny.	Offences of the 1st Degree. Murder.	Offences of the 1st Degree. Unnatural Crime.	Offences of the 1st Degree. Manslaughter.	Offences of the 2d Degree. Uncleanness.	Offences of the 2d Degree. Deserters (apprehended). Number Convicted.	Offences of the 2d Degree. Deserters (apprehended). Proportion per 1,000 per Year.	Offences of the 2d Degree. Insubordination and Disrespect. Number Convicted of	Offences of the 2d Degree. Insubordination and Disrespect. Proportion per 1,000 per Year.	Offences of the 2d Degree. Theft. Number Convicted of	Offences of the 2d Degree. Theft. Proportion per 1,000 per Year.	Offences of the 3d Degree. Drunkenness. Number Convicted of	Offences of the 3d Degree. Drunkenness. Proportion per 1,000 per Year.	Offences of the 3d Degree. Absence without, or over, Leave. Number Convicted of	Offences of the 3d Degree. Absence without, or over, Leave. Proportion per 1,000 per Year.	Offences of the 3d Degree. Minor. Number Convicted of	Offences of the 3d Degree. Minor. Proportion per 1,000 per Year.	Total Number of Crimes and Offences.
84	Active - - - - -	1 Jan. -	31 Dec. -	27	None.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
85	Brilliant - - - - -	1 Jan. -	31 Dec. -	24	S.	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
86	Castor - - - - -	1 Jan. -	31 Dec. -	41	S.	23	-	-	-	-	-	-	-	-	2	-	-	-	5	-	16	-	3	-	26
87	Dædalus - - - - -	1 Jan. -	31 Dec. -	25	S.	4	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	1	-	4
88	Eagle - - - - -	1 Jan. -	31 Dec. -	23	S.	4	-	-	-	-	-	-	-	-	-	-	-	-	2	-	3	-	-	-	5
89	President - - - -	1 Jan. -	31 Dec. -	38	S.	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	5
90	Trincomalee - - - -	1 Jan. -	31 Dec. -	25	S.	4	-	-	-	-	-	-	-	-	-	-	-	-	1	-	4	-	-	-	5
91	Winchester - - - -	1 Jan. -	31 Dec. -	24	S.	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
	TOTALS - - -			227	-	42	-	-	-	-	-	-	-	-	3	-	-	-	10	-	30	-	4	-	47

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal		Imprison-ment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																		
84	Active	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	At Sunderland	–
85	Brilliant	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	At Dundee	–
86	Castor	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	23	–	–	–	–	–	–	–	–	1	–	At North Shields	–
87	Dædalus	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	–	–	At Bristol	–
88	Eagle	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	–	–	At Liverpool	–
89	President	S.	–	–	–	–	–	–	–	–	–	–	1	–	–	5	–	–	–	–	–	–	–	–	1	–	In the City Canal	–
90	Trincomalee	S.	–	–	–	–	–	–	–	–	–	–	–	–	1	3	–	–	–	–	–	–	–	–	–	–	At West Hartlepool	–
91	Winchester	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	At Aberdeen	–
	TOTALS		–	–	–	–	–	–	–	–	–	–	1	–	1	41	–	–	–	–	–	–	–	–	2	–		

(OFFENCES.)

Station, " MEDITERRANEAN."

Distinguishing No. of Ship.	NAME of SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
92 } 4 }	Assurance - - - - -	1 Oct. -	31 Dec. -	63	S.	68	–	–	–	–	–	–	–	–	7	–	1	–	3	–	31	–	26	–	68
93	Caradoc - - - - -	1 Jan. -	31 Dec. -	53	S.	131	2471·70	–	–	–	–	–	–	–	16	301·89	1	18·87	29	547·17	69	1301·89	21	396·22	136
94	Chanticleer - - - - -	1 Jan. -	31 Dec. -	159	S.	268	1685·53	–	–	–	–	–	–	–	21	132·08	5	31·45	48	301·89	45	283·02	149	937·11	268
95	Cockatrice - - - - -	1 Jan. -	31 Dec. -	30	S.	83	2766·67	–	–	–	–	–	–	–	7	233·33	–	–	17	566·67	55	1833·33	9	300·00	88
96	Cossack - - - - -	1 Jan. -	31 Dec. -	239	S.	705	2953·97	–	–	–	–	1	–	–	48	205·02	–	–	87	364·02	157	656·90	438	1832·64	731
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
97	Firefly - - - - -	1 Jan. -	31 Dec. -	78	S	181	2320·51	–	–	–	–	–	–	–	12	153·85	1	12·82	39	500·00	42	538·46	96	1230·77	190
98	Foxhound - - - - -	1 Jan. -	22 Oct. -	73	S.	91	1542·37	–	–	–	–	–	–	–	5	84·75	1	16·95	23	389·83	16	271·19	53	898·31	98
99	Gibraltar - - - - -	1 Jan. -	31 Dec. -	813	S.	4,649	5719·56	–	–	–	–	–	–	–	202	248·46	5	7·38	300	370·23	1,074	1321·03	3,126	3845·02	4,707
					C. M.	1	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	2
100	Hibernia (Receiving Ship at Malta)	1 Jan. -	31 Dec. -	236	S.	304	1288·14	–	–	–	–	–	–	–	21	88·98	3	12·71	98	415·25	148	627·12	91	385·59	361
101	Hydra (Surveying) - - -	1 Jan. -	31 Dec. -	110	S.	190	1727·27	–	–	–	–	–	–	–	21	190·91	1	9·09	48	436·36	15	136·36	110	1000·00	195
102	Icarus - - - - -	1 Jan. -	24 May -	109	S.	125	–	–	–	–	–	–	–	–	1	–	–	–	22	–	45	–	71	–	139
103	Liffey - - - - -	1 Jan. -	31 Dec. -	493	S.	833	1691·68	–	–	–	–	–	–	–	59	121·70	8	16·23	137	277·89	272	551·72	383	776·88	859
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
104	Magicienne - - - - -	1 Jan. -	31 Dec. -	202	S.	436	2158·42	–	–	–	–	–	–	–	49	242·57	9	44·55	51	252·48	129	638·61	216	1069·31	454
105	Marlborough (Flag Ship) - -	1 Jan. -	30 Nov. -	960	S.	1,864	2120·59	–	–	–	–	–	1	1·14	109	124·00	3	3·41	274	311·72	608	691·70	1,001	1138·79	1,996
106	Meeanee - - - - -	1 Jan. -	31 Dec. -	600	S.	1,695	2830·00	–	–	–	–	–	2	3·33	163	275·00	2	3·33	161	268·33	412	688·33	1,000	1666·67	1,740
					C. M.	3	–	–	–	–	–	–	–	–	2	–	–	–	–	–	1	–	–	–	3
107	Orlando - - - - -	1 Jan. -	31 Dec. -	554	S.	1,176	2126·35	–	–	–	–	1	1	3·61	128	232·85	7	12·64	283	510·83	474	855·60	395	713·00	1,289
					C. M.	2	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	2
108	Pelican - - - - -	1 Jan. -	31 Dec. -	157	S.	348	2222·93	–	–	–	–	–	–	–	22	146·50	1	6·37	44	280·25	86	547·77	207	1318·47	360
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
109	Phœbe - - - - -	1 Jan. -	31 Dec. -	482	S.	1,499	3112·03	–	–	–	–	–	–	–	77	161·83	4	8·30	122	253·11	299	622·41	1,022	2120·33	1,524
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	–	–	–	2

Distinguishing No. of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS. Death.	Penal Servitude. Number.	Penal Servitude. Years.	Discharged with Disgrace.	Corporal. Number. (a)	Corporal. Lashes. (a)	Imprisonment. Number.	Imprisonment. Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Average per 1,000 Men and Boys, per Year. Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.	Number and Per-centage of Men and Boys in 2d Class for Conduct. Number	Per-centage	Number of Days at Sea.	(a) Including Boys. Number.	Lashes.	REMARKS.	Total Desertions.
92 } 4 }	Assurance	S.	–	–	–	–	–	–	1	42	–	3	4	1	–	64	–	–	–	–	–	2	3·2	26	–	–	- - - -	4
93	Caradoc	S.	–	–	–	–	1	36	–	–	–	2	2	4	–	125	18·87	679·25	–	–	–	6	11·3	50	–	–	- - - -	2
94	Chanticleer	S.	–	–	–	–	4	168	2	42	2	3	9	17	–	246	25·16	1056·60	12·58	264·15	–	22	13·8	98	1	48	- - - -	–
95	Cockatrice	S.	–	–	–	–	–	–	–	–	8	–	–	–	–	84	–	–	–	–	–	5	16·7	39	–	–	- - - -	2
96	Cossack	S.	–	–	–	–	5	151	8	250	17	3	12	24	2	665	20·92	631·80	37·66	4100·42	4·18	33	13·8	119	2	43	- - - -	4
		C. M.	–	–	–	1	–	–	1	730																		
97	Firefly	S.	–	–	–	–	3	84	10	301	3	–	4	8	–	168	38·46	1076·92	128·20	3858·97	–	10	12·8	Not stated.	3	84	- - - -	2
98	Foxhound	S.	–	–	–	–	1	48	2	84	–	2	4	7	–	82	16·95	813·56	33·90	1423·73	–	11	15·1	131	1	48	- - - -	–
99	Gibraltar	S.	–	–	–	–	7	156	18	564	84	9	20	84	–	4,477	8·61	191·88	23·37	1142·68	–	131	16·1	65	5	90	- - - -	1
		C. M.	–	–	–	–	–	–	1	365	–	1																
100	Hibernia	S	–	–	–	–	–	–	14	420	18	1	9	10	–	276	–	–	59·32	1779·66	–	Not stated		–	–	–	- - - -	–
101	Hydra	S.	–	–	–	–	1	18	4	98	2	2	12	8	–	165	9·09	163·64	36·36	890·91	–	9	8·2	69	1	18	- - - -	–
102	Icarus	S.	–	–	–	–	–	–	1	28	–	–	2	3	–	123	–	–	–	–	–	70	64·2	70	–	–	- - - -	–
103	Liffey	S.	–	–	–	–	13	388	13	415	36	1	19	32	1	780	26·37	787·02	28·40	1582·15	–	75	15·2	60½	4	144	- - - -	–
		C. M.	–	–	–	–	–	–	1	365	–	–	–	1	–	1												
104	Magicienne	S.	–	–	–	–	5	204	5	140	1	5	9	12	1	415	24·75	1009·90	24·75	693·07	–	30	14·9	116	2	72	- - - -	–
105	Marlborough	S.	–	–	–	–	3	120	35	1,146	37	15	57	73	2	1,743	3·41	136·52	39·82	1303·75	–	112	11·7	74	1	36	- - - -	1
106	Meanee	S.	–	–	–	–	13	396	42	1,183	23	11	14	46	1	1,572	23·33	73·33	75·00	4100·00	–	85	14·2	79	9	228	- - - -	–
		C. M.	–	–	–	–	1	48	3	1,277	–	–	–	1														
107	Orlando	S.	–	–	–	–	10	288	23	673	68	14	38	60	1	1,071	21·66	671·48	45·13	2530·69	–	92	16·6	33	7	156	- - - -	2
		C. M.	–	–	–	–	2	84	2	729	–	–	–	2	–	–	–	–	–	–	–	–	–	–	1	48		
108	Pelican	S.	–	–	–	–	2	64	6	196	–	2	5	12	1	337	19·11	713·38	44·59	4732·48	–	28	17·8	129	–	–	- - - -	–
		C. M.	–	–	–	–	1	48	1	547	–	–	–	–	1													
109	Phœbe	S.	–	–	–	–	10	360	11	308	25	10	16	47	4	1,410	22·82	846·4	24·90	2153·53	–	116	24·1	67	5	168	- - - -	–
		C. M.	–	–	–	–	1	48	1	730	–	–	–	1														

(OFFENCES.)

Station, "MEDITERRANEAN"—*continued.*

Distinguishing No. of Ship.	NAME OF SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion pe 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
110	Procris	1 Jan.	31 Dec.	23	S.	22	956·52	–	–	–	–	–	–	–	5	217·39	–	–	–	–	11	478·26	6	260·87	22
111	Psyche	1 Jan.	31 Dec.	55	S.	68	1236·36	–	–	–	–	–	–	–	11	200·00	–	–	15	272·73	42	763·64	5	90·91	73
112	Queen	Tried subsequent to the Ship being paid off in December 1863.			C. M.	1	–	–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	–	–	2
113 46	Racer	1 Oct.	31 Dec.	110	S.	56	2842·11	–	–	–	–	–	1	17·54	11	263·16	–	–	5	122·81	6	1614·04	33	824·56	56
114 47	Racoon	1 Jan. 1 Oct.	30 June 31 Dec.	250	S.	556	2636·00	–	–	–	–	–	2	8·00	48	228·00	3	16·00	57	260·00	165	692·00	297	1504·00	572
115	Resistance	1 Jan.	31 Dec.	424	S.	1,606	3787·74	–	–	–	–	–	–	–	95	224·06	11	25·94	121	285·38	323	761·79	1089	2568·39	1,639
116	Revenge (Flag Ship)	1 Jan.	31 Dec.	748	S. C. M.	1,904 2	2548·13 –	– –	– –	– –	– –	– –	– 1	1·34 –	147 1	197·86 –	20 –	26·74 –	308 –	411·76 –	301 –	402·41 –	1208 –	1614·97 –	1,984 2
117	Royal Oak	1 Jan.	31 Dec.	541	S. C. M.	1,356 2	2510·17 –	– –	– –	– –	– –	– –	1 –	1·85 –	103 2	194·09 –	2 –	3·70 –	152 2	284·66 –	383 –	707·95 –	730 –	1349·35 –	1,371 4
118	St. George	1 Jan.	9 Feb.	750	S. C. M.	180 1	– –	– –	– –	– –	– –	– –	– –	– –	10 1	– –	– –	– –	26 1	– –	76 –	– –	75 –	– –	187 2
119	Surprise	1 Jan.	31 Dec.	83	S.	156	1879·52	–	–	–	–	–	–	–	12	144·58	–	–	17	204·82	61	734·94	76	915·66	166
120	Trafalgar	1 Jan.	29 Feb.	711	S. C.M	74 1	– –	– –	– –	– –	– –	– –	– –	– –	13 1	– –	4 –	– –	14 1	– –	– –	– –	44 –	– –	75 2
121	Trident	1 Jan.	31 Dec.	97	S.	237	2443·30	–	–	–	–	–	–	–	20	206·19	1	10·31	25	257·74	20	206·19	180	1855·67	246
122	Wanderer	1 Jan.	31 Dec.	87	S.	40	459·77	–	–	–	–	–	–	–	12	137·93	1	11·49	11	126·44	3	34·48	13	149·43	40
123	Weser	1 Jan.	31 Dec.	57	S. C. M.	68 1	1210·53 –	– –	– –	– –	– –	– –	1 –	17·54 –	4 1	87·72 –	– –	– –	7 –	122·81 –	17 1	315·79 –	39 –	684·21 –	68 2
			TOTALS	9,347*	–	20,987	2685·82	–	–	–	–	2	12	1·54	1,472	188·38	96	12·29	2,549	326·21	5,388	689·53	12,209	1562·45	21,728

* The average mean force borne for the whole year was 7,814, and on that number the final proportions are cast.

47.

(PUNISHMENTS.)

Distinguishing No. of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																		
110	Procris	S.	–	–	–	–	–	–	–	–	–	–	1	–	–	21	–	–	–	–	–	5	21·7	47	–	–	- - - -	1
111	Psyche	S.	–	–	–	–	–	–	–	–	–	1	4	4	–	68	–	–	–	–	–	4	7·3	48	–	–	- - - -	–
112	Queen	C. M.	–	–	–	–	–	–	1	365	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	- - - -	–
113 46	Racer	S.	–	–	–	–	–	–	–	–	–	1	–	7	1	51	–	–	–	–	–	11	10·0	14	–	–	Proportions include entries at No. 46.	–
114 47	Racoon	S.	–	–	–	–	2	96	9	390	3	2	5	19	–	547	16·00	720·00	36·00	1560·00	–	30	12·0	52	2	96	Proportions include entries at No. 47.	8
115	Resistance	S.	–	–	–	–	13	402	4	126	98	4	15	25	1	1,492	30·66	948·11	9·43	297·17	–	107	25·2	50	6	204	- - -	–
116	Revenge	S.	–	–	–	–	12	408	6	154	60	11	35	52	2	1,784	17·38	598·93	10·69	1425·13	–	146	19·5	55	9	288	- - - -	–
		C. M.	–	–	–	–	1	48	2	912	–	1	–	–	1													
117	Royal Oak	S.	–	–	–	–	3	108	21	669	24	9	19	39	1	1,281	5·55	199·63	42·51	3935·30	–	100	18·5	46	1	36	- - - -	11
		C. M.	–	–	–	–	–	–	2	1,460	–	–	–	–	2													
118	St. George	S.	–	–	–	–	1	36	3	126	6	–	8	8	–	167	–	–	–	–	–	124	16·5	20	1	36	- - - -	–
		C. M.	–	–	–	–	1	48	1	365	–	–	–	1														
119	Surprise	S.	–	–	–	–	–	–	9	224	–	2	4	6	–	143	12·05	578·31	120·48	7096·39	–	10	12·0	98	–	–	- - - -	–
120	Trafalgar	S.	–	–	–	–	2	96	1	28	3	1	5	5	–	64	–	–	–	–	–	95	13·4	31	–	–	- - - -	–
		C. M.	–	–	–	–	–	–	1	120	–	–	–	1														
121	Trident	S.	–	–	–	–	–	–	5	182	4	3	10	7	–	221	–	–	51·55	1876·29	–	7	7·2	63	–	–	- - - -	–
122	Wanderer	S.	–	–	–	–	–	–	–	–	–	–	1	1	–	39	–	–	–	–	–	4	4·6	36 in 9 months.	–	–	- - - -	–
123	Weser	S.	–	–	–	–	–	–	–	–	6	–	–	–	–	62	17·54	842·11	17·54	12807·02	17·54	12	21·5	38	–	–	- - - -	2
		C. M.	–	–	–	1	1	48	1	730																		
	TOTALS		–	–	–	2	119	3,999	271	16,484	528	119	343	628	22	19,744	15·23	511·77	34·68	2109·55	0·26	1492	16·4	–	61	1,843	- - - -	40
	Deduct Boys					-	61	1,843																			Recovered	12
	Men						58	2,156																			Lost to the Service	28

Station, "NORTH AMERICA AND WEST INDIES."

Distinguishing No. of Ship.	NAME of SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
								Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.						Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
124	Aboukir (Guard Ship at Port Royal, Jamaica).	1 Jan.	31 Dec.	193	S. C. M.	321 1	1668·39 –	– –	– –	– –	– –	– –	– 1	5·18 –	37 –	191 71 –	– –	– –	80 –	414·51 –	160 –	829·02 –	73 –	378·29 –	350 1
125	Ariadne	1 Jan.	19 Mar.	396	S.	113	–	–	–	–	–	2	–	–	7	–	1	–	19	–	26	–	58	–	113
126	Barracouta	1 Jan.	23 Nov.	157	S.	357	2531·91	–	–	–	–	–	–	–	26	184·39	–	–	18	127·66	125	886·53	188	1333·33	357
127 9	Bulldog	1 July	31 Dec.	160	S. C. M.	248 1	2871·21 –	– –	– –	– –	– –	– –	– –	– –	12 1	151·52 –	1 –	15·15 –	8 –	98·49 –	28 –	446·97 –	199 –	2166·67 –	248 1
128	Buzzard	1 Jan.	31 Dec.	153	S. C. M.	341 2	2241·83 –	– –	– –	– –	– –	– –	– 1	6·54 –	24 –	156·86 –	1 –	6·54 –	50 –	326·80 –	107 1	705·88 –	171 –	1117·65 –	353 2
129	Challenger	1 Jan.	31 Dec.	258	S. C. M.	1,113 1	4317·83 –	– –	– –	– –	– –	– –	– –	– –	70 –	271·32 –	3 –	11·63 –	123 –	476·74 –	363 –	1406·98 –	575 1	2232·56 –	1,134 1
130 14	Cordelia	1 Oct.	31 Dec.	114	S.	79	2508·47	–	–	–	–	–	–	–	5	135·59	–	–	14	271·18	29	1033·90	34	1118·64	82
131	Cygnet	1 Jan.	31 Dec.	61	S.	133	2177·05	–	–	–	–	–	–	–	26	426·83	1	16·39	27	443·22	64	1049·18	24	393·44	142
132 19	Duncan (Flag Ship)	1 Apr.	31 Dec.	908	S. C. M.	2,148 3	3276·89 –	– –	– –	– –	– –	– –	8 1	10·30 –	195 2	255·15 –	8 –	9·15 –	144 –	194·51 –	810 –	1173·91 –	1,013 –	1670·48 –	2,178 3
133	Fawn	20 June	31 Dec.	157	S.	207	2493·97	–	–	–	–	–	–	–	32	385·54	1	12·05	15	180·72	107	1289·16	60	722·89	215
134 28	Galatea	1 Jan. 1 Oct.	31 Mar. 31 Dec.	438	S. C. M.	459 1	2234·37 –	– –	– –	– –	– –	– –	1 –	6·70 –	31 –	151·79 –	3 –	11·16 –	30 –	118·30 –	285 1	1441·96 –	109 –	520·09 –	459 1
135	Greyhound	1 Jan.	23 Nov.	157	S.	273	1950·00	–	–	–	–	–	–	–	49	350·00	4	28·57	28	200·00	42	300·00	154	1100·00	277
136	Immortalité	1 Jan.	15 July	442	S.	281	1180·67	–	–	–	–	–	–	–	51	214·29	–	–	38	159·66	142	596·64	75	315·13	306
137	Jason	1 Jan.	3 Dec.	220	S.	692	3408·84	–	–	–	–	–	–	–	38	187·19	3	14·78	36	177·34	226	1113·30	392	1931·03	695
138	Landrail	1 Jan.	15 Mar.	52	S.	11	–	–	–	–	–	–	–	–	7	–	–	–	–	–	1	–	3	–	11
139	Lily	1 Jan.	31 Dec.	85	S.	159	1870·59	–	–	–	–	–	–	–	25	294·12	2	23·53	11	129·41	22	258·82	100	1176·47	160
140	Liverpool	1 Jan.	31 Dec.	440	S.	784	1781·82	–	–	–	–	–	–	–	78	177·27	9	20·45	140	318·18	199	452·27	383	870·45	809
141	Medea	1 Jan.	31 Dec.	119	S.	167	1403·36	–	–	–	–	–	–	–	20	168·07		–	53	445·38	65	546·22	47	394·96	185

(PUNISHMENTS.)

Distinguishing No. of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS. Death.	Penal Servitude. Number.	Penal Servitude. Years.	Discharged with Disgrace.	Corporal. Number. (a)	Corporal. Lashes. (a)	Imprisonment. Number.	Imprisonment. Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Average per 1,000 Men and Boys per Year. Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.	Number and Per-centage of Men and Boys in 2d Class for Conduct. Number	Per-centage	Number of Days at Sea.	(a) Including Boys. Number	(a) Including Boys. Lashes.	REMARKS.	Total Desertions.
124	Aboukir	S.	–	–	–	–	3	56	6	147	8	3	5	16	–	291	20·73	476·68	36·27	2652·85	–	Not stated		–	3	56	- - -	1
		C.M.	–	–	–	–	1	36	1	365	–	–	–	–	1													
125	Ariadne	S.	–	–	–	–	4	168	1	28	1	4	3	6	–	99	–	–	–	–	–	59	14·9	39	1	48	- - -	–
126	Barracouta	S.	–	–	–	–	2	60	5	133	–	5	10	10	1	330	14·11	425·53	35·46	943·26	–	10	7·1	120	1	24	- - -	4
127 } 9 }	Bulldog	S.	–	–	–	–	–	–	1	8	5	–	1	3	–	240	7·58	363·64	15·15	1439·39	–	14	8.8	80	–	–	Proportions include entries at No. 9.	–
		C.M.	–	–	–	–	1	48	1	182	–	–	–	1														
128	Buzzard	S.	–	–	–	–	2	60	–	–	1	8	8	3	–	325	19·62	705·88	6·54	4771·24	–	17	11·1	52	–	–	- - -	6
		C.M.	–	–	–	–	1	48	1	730																		
129	Challenger	S.	–	–	–	–	2	42	3	160	13	4	6	10	–	1,083	7·75	162·79	15·50	968·99	–	27	10·5	69 in 9 months.	1	18	- - -	3
		C.M.	–	–	–	–	–	–	1	90	–	–	1	1														
130 } 14 }	Cordelia	S.	–	–	–	–	–	–	1	42	–	–	–	2	–	76	–	–	33·90	1423·73	–	8	7·0	56	–	–	Proportions include entries at No. 14.	–
131	Cygnet	S.	–	–	–	–	3	144	3	84	17	2	4	12	–	106	49·17	2360·66	49·17	1377·05	–	12	19·7	198	–	–	- - -	–
132 } 19 }	Duncan	S.	–	–	–	–	3	120	13	521	34	10	46	100	–	2,072	5·72	247·14	26·31	2211·67	–	145	16·0	56	2	84	Proportions include entries at No. 19.	18
		C.M.	–	–	–	–	2	96	3	1,277																		
133	Fawn	S.	–	–	–	–	3	126	1	28	–	3	4	5	–	194	36·14	1518·07	12·05	337·35	–	20	12·7	115	–	–	- - -	8
134 } 28 }	Galatea	S.	–	–	–	–	4	120	20	344	15	10	13	20	–	414	17·86	575·89	66·96	2254·46	2·23	69	15·7	58	4	120	Proportions include entries at No. 28.	7
		C.M.	–	–	–	–	–	–	1	274																		
135	Greyhound	S.	–	–	–	–	6	252	2	56	5	4	7	11	–	242	42·86	1800·00	14·29	400·00	–	15	9·6	159	–	–	- - -	–
136	Immortalité	S.	–	–	–	–	1	36	4	112	1	4	13	6	–	263	4·20	151·26	16·80	470·59	–	29	6·6	65	1	36	- - -	11
137	Jason	S.	–	–	–	–	–	–	5	140	–	2	8	8	–	673	–	–	24·63	689·66	–	20	9·1	115	–	–	- - -	–
138	Landrail	S.	–	–	–	–	–	–	–	–	1	–	–	–	–	10	–	–	–	–	–	12	23·1	40	–	–	- - -	–
139	Lily	S.	–	–	–	–	2	72	–	–	1	3	4	5	–	144	23·53	847·06	–	–	–	10	11·8	105 in 9 months.	–	–	- - -	–
140	Liverpool	S.	–	–	–	–	6	173	10	227	21	6	14	33	1	733	13·64	393·18	21·73	515·91	–	60	13·6	82	1	5	- - -	–
141	Medea	S.	–	–	–	–	–	–	–	–	4	3	7	9	–	146	–	–	–	–	–	8	6·7	141	–	–	- - -	2

Station, "NORTH AMERICA AND WEST INDIES"—*continued.*

Distinguishing No. of Ship.	NAME OF SHIP.	For what Period (1864).		Average Number of Men and Boys Borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1 000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
142	Nile (Flag Ship)	1 Jan.	23 April	696	S.	326	–	–	–	–	–	–	–	–	37	–	2	–	22	–	118	–	153	–	332
					C. M.	2	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	2
143	Nimble	1 Jan.	31 Dec.	56	S.	187	3357·14	–	–	–	–	–	–	–	14	267·86	–	–	17	320·14	51	910·71	112	2000·00	194
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	2
144	Peterel	1 Jan.	31 Dec.	110	S.	569	5172·73	–	–	–	–	–	2	18·18	54	490·91	1	9·09	57	518·18	78	709·09	383	3481·82	575
145	Phaeton	1 Jan.	31 Dec.	408	S.	987	2419·12	–	–	–	–	–	6	14·71	99	242 65	9	22·05	89	218·14	252	617·65	551	1350·49	1,006
146	Plover	1 Jan.	31 Dec.	56	S.	191	3446·43	–	–	–	–	–	–	–	33	625·00	–	–	8	142·86	85	1535·71	68	1214·29	194
					C. M.	2	–	–	–	–	–	–	–	–	2	–	–	–	–	–	1	–	–	–	3
147	Pylades	1 Jan.	31 Dec.	234	S.	735	3141·03	–	–	–	–	–	1	4·27	69	294·87	2	8·55	76	324·79	140	598·29	455	1944·44	743
148	Rinaldo	1 Jan.	31 Dec.	152	S.	419	2756·58	–	–	–	–	–	–	–	31	203·95	–	–	39	256·58	70	460·53	279	1835·56	419
149	Rosario	1 Jan.	31 Dec.	108	S.	293	2712·96	–	–	–	–	–	1	9·26	24	222·22	–	–	31	287·04	111	1027·78	129	1194·44	296
150	Royalist	1 Jan.	31 Dec.	114	S.	113	991·23	–	–	–	–	–	–	–	17	149·12	–	–	14	122·81	29	254·39	54	473·68	114
151	Shannon	1 Jan.	31 Dec.	417	S.	867	2112·71	–	–	–	–	–	–	28·78	133	323·74	3	35·97	43	106·24	192	460·43	504	1208·63	875
					C. M.	14	–	–	–	–	–	–	12	–	2	–	12*	–	1	–	–	–	–	–	27
152	Steady	1 Jan.	31 Dec.	56	S.	259	4625·00	–	–	–	–	–	1	17·86	22	392·86	1	17·86	35	625·00	65	1160·71	141	2517·86	265
153	Styx	1 Jan.	31 Dec.	142	S.	397	2795·77	–	–	–	–	2	4	28·17	17	119·72	4	28·17	48	338·03	133	936·62	210	1478·87	418
154	Terror (Guard Ship at Bermuda)	1 Jan.	31 Dec.	315	S.	261	831·75	–	–	–	–	–	–	–	23	73·02	–	–	85	269·84	152	482·54	38	120·63	298
					C. M.	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
155	Vesuvius	1 Jan.	8 Nov.	125	S.	864	8084·11	–	–	–	–	–	1	9·35	53	495·33	1	9·35	75	700·93	202	1887·85	561	5242·99	893
					C. M.	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
156	Virago	1 Jan.	31 Dec.	141	S.	321	2276·59	–	–	–	–	–	–	–	31	219·86	3	21·28	38	269·50	114	808·51	143	1014·18	329
157 65	Wolverine	1 Oct.	31 Dec.	276	S.	110	4025·48	–	–	–	–	–	–	12·74	10	229·30	1	38·22	6	197·45	2	1675·16	91	1955·41	110
	TOTALS			7,916†	–	14,815	2500·84	–	–	–	–	6	40	6·75	1,408	237·68	77	13·00	1,520	256·58	4,598	776·16	7,531	1271·27	15,180

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* Of Boat, &c., with which they deserted.

† The average mean force borne for the whole year was 5,924, and in that number the final proportions are cast.

47.

(PUNISHMENTS.)

Distinguishing No. of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS. Death.	Penal Servitude Number.	Penal Servitude Years.	Discharged with Disgrace.	Corporal. Number. (a)	Corporal. Lashes (a).	Imprisonment. Number.	Imprisonment. Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Average per 1,000 Men and Boys, per Year. Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.	Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys. Number	(a) Including Boys. Lashes.	REMARKS.	Total Desertions.
142	Nile	S.	–	–	–	2	2	96	–	–	4	–	2	14	–	308	–	–	–	–	–	71	10·2	8	–	–	- - -	–
		C. M.	–	–	–	1	2	96	–	–	–	–	1	1														
143	Nimble	S.	–	–	–	–	3	108	–	–	3	–	–	6	–	166	71·43	2785·71	–	–	–	10	17·9	170	1	36	- - -	2
		C. M.	–	–	–	–	1	48	–	–	–	–	–	1														
144	Peterel	S.	–	–	–	–	4	180	15	385	11	9	10	14	–	534	36·36	1636·36	136·36	3500·00	–	23	20·9	152	2	84	- - -	2
145	Phaeton	S.	–	–	–	–	19	618	10	404	13	9	19	37	1	916	46·57	1514·71	24·51	990·20	–	75	18·4	70	10	312	- - -	17
146	Plover	S.	–	–	–	–	7	325	3	76	4	1	6	12	2	172	160·71	7464·29	89·29	11125·00	–	14	25·0	231	4	180	- - -	–
		C. M.	–	–	–	–	2	96	2	547																		
147	Pylades	S.	–	–	–	–	4	162	4	112	9	9	20	29	–	673	17·09	692·31	17·09	478·63	–	34	14·5	78	3	126	- - -	6
148	Rinaldo	S.	–	–	–	–	4	140	1	14	1	1	4	10	–	406	26·32	921·05	6·58	92·11	–	17	11·2	130	–	–	- - -	1
149	Rosario	S.	–	–	–	–	1	36	2	88	–	4	5	8	–	279	9·26	333·33	18·52	814·81	–	14	13·0	88	–	–	- - -	3
150	Royalist	S.	–	–	–	–	–	–	2	20	2	3	3	2	–	110	–	–	17·54	175·44	–	7	6·1	254	–	–	- - -	–
151	Shannon	S.	–	–	–	–	5	168	3	84	47	7	8	31	–	819	16·79	633·09	14·39	3263·79	–	78	18·7	107	2	60	- - -	36
		C. M.	–	11	39	–	2	96	3	1,277																		
152	Steady	S.	–	–	–	–	2	78	2	70	2	–	3	8	–	242	35·71	1392·86	35·71	1250·00	–	12	21·4	188	2	78	- - -	2
153	Styx	S.	–	–	–	–	4	122	10	304	15	5	5	18	–	358	28·17	859·15	70·42	2140·84	–	16	11·3	83	2	56	- - -	17
154	Terror	S.	–	–	–	–	–	–	8	154	5	5	9	23	–	239	–	–	28·57	2806·35	3·17	24	7·6	–	–	–	- - -	2
		C. M.	–	–	–	1	–	–	1	730																		
155	Vesuvius	S.	–	–	–	–	4	120	5	230	6	4	6	15	–	846	37·38	1121·50	46·73	2149·53	–	22	17·6	79	1	36	- - -	25
		C. M.	–	1	3																							
156	Virago	S.	–	–	–	–	2	54	3	65	7	3	2	12	–	298	14·18	382·98	21·28	460·99	–	24	17·0	122	1	24	- - -	7
157 65	Wolverine	S.	–	–	–	–	–	–	–	–	5	1	2	6	–	105	6·37	152·87	6·37	178·34	–	28	10·1	44	–	–	Proportions include entries at No. 65.	–
	TOTALS - - -		–	12	42	4	114	4,200	157	9,508	261	132	259	508	6	13,912	19·24	708·98	26·50	1605·00	0·68	1,004	13·0	–	42	1,383	- - -	180
	Deduct Boys - - -						42	1,383																			Recovered - - -	40
	Men - - -						72	2,817																			Lost to the Service - - -	140

Station, "CHINA."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1864). From	To	Average Number of Men and Boys borne.	CONVICTIONS. Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Offences of the 1st Degree. Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Offences of the 2d Degree. Uncleanness.	Deserters (apprehended.) Number Convicted.	Proportion per 1,000 per Year.	Insubordination and Disrespect. Number Convicted of	Proportion per 1,000 per Year.	Theft. Number Convicted of	Proportion per 1,000 per Year.	Offences of the 3d Degree. Drunkenness. Number Convicted of	Proportion per 1,000 per Year.	Absence without, or over, Leave. Number Convicted of	Proportion per 1,000 per Year.	Minor. Number Convicted of	Proportion per 1,000 per Year.	Total Number of Crimes and Offences.
158 2	Adventure (Troop Ship)	1 July	31 Dec.	318	S.	356	2361·23	–	–	–	–	–	–	4·41	17	163·00	1	22·03	31	193·83	104	625·55	205	1392·07	358
159	Algerine	1 Jan.	31 Dec.	34	S.	69	2029·41	–	–	–	–	–	2	58·82	6	176·47	–	–	18	529·41	32	941·18	19	558·82	77
160	Argus	1 Jan.	31 Dec.	142	S.	171	1204·23	–	–	–	–	–	–	–	28	197·18	–	–	71	500·00	43	302·82	49	345·07	191
161	Banterer	8 Sept.	31 Dec.	35	S.	20	–	–	–	–	–	–	–	–	2	–	–	–	7	–	7	–	8	–	24
162	Barrosa	1 Jan.	31 Dec.	240	S.	630	2625·00	–	–	–	–	1	1	4·17	41	170·83	1	4·17	98	408·33	189	787·50	327	1362·50	658
163	Bouncer	1 Jan.	31 Dec.	36	S.	36	1000·00	–	–	–	–	–	–	–	5	138·89	–	–	15	416·67	20	555·56	8	222·22	48
164	Bustard	1 Jan.	31 Dec.	36	S.	28	777·78	–	–	–	–	–	–	–	3	83·33	–	–	8	222·22	20	555·56	2	55·56	33
165	Centaur	1 Jan.	11 June	178	S.	142	–	–	–	–	–	–	–	–	15	–	–	–	10	–	25	–	95	–	145
166	Clown	1 Jan.	31 Mar.	33	S.	9	–	–	–	–	–	–	–	–	–	–	–	–	3	–	7	–	–	–	10
167	Cockchafer	1 Jan.	31 Dec.	25	S.	36	1440·00	–	–	–	–	–	–	–	3	120·00	–	–	15	600·00	16	640·00	9	360·00	43
168	Conqueror	1 Jan.	31 Dec.	707	S.	1,147	1622·35	–	–	–	–	–	1	1·41	110	155·59	8	11·32	139	196·61	392	554·46	555	785·01	1,205
169	Coquette	1 Jan.	31 Dec.	70	S.	119	1700·00	–	–	–	–	–	–	–	15	214·29	–	–	16	228·57	44	628·57	48	685·71	123
170	Cormorant	1 Jan.	31 Dec.	77	S.	243	3155·84	–	–	–	–	–	–	–	46	597·40	–	–	21	272·73	37	480·52	162	2103·90	266
171	Coromandel	1 Jan.	31 Dec.	34	S.	65	1941·18	–	–	–	–	–	–	–	12	382·35	–	–	33	1000·00	13	382·35	13	382·35	71
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	2
172	Encounter	1 Jan.	3 Aug.	156	S.	181	1967·39	–	–	–	–	–	–	–	12	130·44	–	–	13	141·30	139	1510·87	22	239·13	186
173	Euryalus (Flag Ship)	1 Jan.	31 Dec.	475	S.	1,257	2652·67	–	–	–	–	–	3	8·42	76	160·00	–	–	264	555·79	249	528·42	685	1442·11	1,277
					C. M.	3	–	–	–	–	–	–	1	–	–	–	–	–	–	–	2	–	–	–	3
174	Flamer	1 Jan.	31 Dec.	32	S.	42	1312·50	–	–	–	–	–	–	–	8	250·00	–	–	12	375·00	11	343·75	17	531·25	48
175	Grasshopper	1 Jan.	31 Dec.	32	S.	50	1562·50	–	–	–	–	–	–	–	7	218·75	–	–	8	250·00	24	750·00	14	437·50	53
176	Hardy	1 Jan.	31 Dec.	32	S.	36	1125·00	–	–	–	–	–	–	–	3	93·75	–	–	11	343·75	21	656·25	4	125·00	39
177	Haughty	1 Jan.	31 Dec.	36	S.	105	2916·67	–	–	–	–	–	–	–	8	222·22	–	–	20	555·56	39	1083·33	41	1138·89	108
178	Havoc	1 Jan.	31 Dec.	32	S.	62	1937·50	–	–	–	–	–	–	–	9	281·25	–	–	19	593·75	21	656·25	20	625·00	69
179	Hesper (Store Ship)	1 Jan.	31 Dec.	60	S.	98	1633·33	–	–	–	–	–	–	–	17	283·33	2	33·33	27	450·00	33	550·00	22	366·67	101
180	Insolent	1 Jan.	31 Dec.	40	S.	10	250·00	–	–	–	–	–	–	–	2	50·00	–	–	1	25·00	9	225·00	–	–	12
181	Janus	1 Jan.	31 Dec.	36	S.	103	2861·11	–	–	–	–	–	–	–	14	388·89	–	–	32	888·89	31	861·11	31	861·11	108

(PUNISHMENTS.)

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude. Number.	Penal Servitude. Years.	Discharged with Disgrace.	Corporal. Number. (a)	Corporal. Lashes. (a)	Imprisonment. Number.	Imprisonment. Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
158 2	Adventure	S.	–	–	–	–	1	36	2	70	5	1	1	1	–	351	4·41	158·59	30·84	2594·71	–	36	11·3	75	1	36	Proportions include entries at No. 2.	2
159	Algerine	S.	–	–	–	–	3	120	4	105	–	–	2	10	–	65	88·24	3529·41	117·64	3088·24	–	6	17·6	–	2	72	- - -	–
160	Argus	S.	–	–	–	–	2	60	4	72	2	4	10	18	2	145	14·08	422·54	28·16	507·04	–	25	17·6	70	–	–	- - -	2
161	Banterer	S.	–	–	–	–	–	–	1	28	–	–	–	2	–	19	–	–	–	– –	–	11	31·4	28	–	–	- - -	–
162	Barrosa	S.	–	–	–	1	3	108	7	189	4	11	16	18	1	595	12·54	450·00	29·17	787·50	4·17	30	12·5	32	–	–	- - -	1
163	Bouncer	S.	–	–	–	–	–	–	–	–	–	–	2	5	–	35	–	–	–	– –	–	12	33·3	–	–	–	- - -	–
164	Bustard	S.	–	–	–	–	1	36	–	–	–	1	1	1	–	25	27·28	1000·00	–	– –	–	1	2·7	86	–	–	- - -	–
165	Centaur	S.	–	–	–	–	–	–	–	–	5	2	7	2	–	127	–	–	–	– –	–	15	8·4	108	–	–	- - -	2
166	Clown	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	9	–	–	–	– –	–	3	9·1	12	–	–	- - -	–
167	Cockchafer	S.	–	–	–	–	–	–	3	63	–	2	–	–	–	31	–	–	120·00	2520·00	–	5	20·0	49	–	–	- - -	1
168	Conqueror	S.	–	–	–	–	5	138	7	252	16	3	8	27	1	1,116	7·07	195·19	9·90	356·44	–	69	9·8	141	3	78	- - -	2
169	Coquette	S.	–	–	–	–	4	156	6	217	–	2	4	7	–	107	57·14	2228·57	85·71	3100·00	–	11	15·7	50	–	–	- - -	2
170	Cormorant	S.	–	–	–	–	1	36	3	70	–	2	3	6	–	224	12·99	467·53	38·96	909·01	–	15	19·5	41	1	36	- - -	–
171	Coromandel	S.	–	–	–	–	1	36	1	28	5	1	2	4	–	54	58·82	2470·59	58·82	11558·82	–	6	17·6	2	–	–	- - -	–
		C. M.	–	–	–	–	1	48	1	365	–	–	–	1														
172	Encounter	S.	–	–	–	–	–	–	–	–	1	5	10	7	–	160	–	–	–	– –	–	16	10·3	140	–	–	- - -	–
173	Euryalus	S.	–	–	–	–	8	264	30	1,006	84	14	29	50	2	1,093	18·95	631·58	69·47	3505·26	–	85	17·9	18	1	36	- - -	5
		C. M.	–	–	–	–	1	36	3	659																		
174	Flamer	S.	–	–	–	–	–	–	1	42	–	–	1	3	1	39	–	–	31·25	1312·50	–	3	9·4	58	–	–	- - -	–
175	Grasshopper	S.	–	–	–	–	1	48	2	29	–	1	–	5	–	44	31·25	1500·00	62·50	906·25	–	6	18·7	105	–	–	- - -	–
176	Hardy	S.	–	–	–	–	–	–	3	112	–	2	1	4	–	35	–	–	93·75	3500·00	–	3	9·3	34	–	–	- - -	6
177	Haughty	S.	–	–	–	–	–	–	2	28	5	3	–	–	–	96	–	–	55·56	777·78	–	9	25·0	53	–	–	- - -	–
178	Havoc	S.	–	–	–	–	1	36	3	70	–	2	1	3	1	56	31·25	1125·00	93·75	2187·50	–	5	15·6	–	–	–	- - -	–
179	Hesper	S.	–	–	–	–	–	–	2	56	1	7	1	8	–	82	–	–	33·33	933·33	–	14	23·3	47	–	–	- - -	8
180	Insolent	S.	–	–	–	–	–	–	–	–	–	2	–	4	–	8	–	–	–	– –	–	2	5·0	2	–	–	- - -	2
181	Janus	S.	–	–	–	–	–	–	3	70	2	2	1	4	–	93	–	–	83·33	1944·44	–	8	22·2	39	–	–	- - -	–

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1864). From	To	Average Number of Men and Boys borne.	CONVICTIONS. Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Offences of the 1st Degree. Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Offences of the 2d Degree. Uncleanness.	Deserters (apprehended). Number Convicted.	Proportion per 1,000 per Year.	Insubordination and Disrespect. Number Convicted of	Proportion per 1,000 per Year.	Theft. Number Convicted of	Proportion per 1,000 per Year.	Offences of the 3d Degree. Drunkenness. Number Convicted of	Proportion per 1,000 per Year.	Absence without, or over, Leave. Number Convicted of	Proportion per 1,000 per Year.	Minor. Number Convicted of	Proportion per 1,000 per Year.	Total Number of Crimes and Offences.
182	Kestrel - - - - -	1 Jan. -	31 Dec. -	35	S.	49	1400·00	–	–	–	–	1	28	–	15	428·57	1	28·57	17	485·71	10	285·71	12	342·86	56
183	Leopard - - - - -	1 Jan. -	31 Dec. -	250	S.	447	1788·00	–	–	–	–	–	1	4·00	49	196·00	3	12·00	102	408·00	83	332·00	216	864·00	454
184	Leven - - - - -	1 Jan. -	31 Dec. -	44	S.	99	2250·00	–	–	–	–	–	–	–	25	568·18	–	–	29	659·09	20	454·55	31	704·55	105
185	Manilla - - - - -	1 Jan. -	31 Dec. -	40	S.	38	950·00	–	–	–	–	–	2	50·00	2	50·00	1	25·00	6	150·00	26	650·00	1	25·00	38
186	Osprey - - - - -	1 Jan. -	31 Dec. -	70	S.	113	1628·57	–	–	–	–	–	–	14·29	9	142·86	–	–	29	414·29	27	385·71	53	757·14	118
					C. M.	1	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	2
187	Pearl - - - - -	1 Jan. -	18 June -	186	S.	136	–	–	–	–	–	–	1	–	25	–	–	–	6	–	15	–	90	–	137
188	Pelorus - - - - -	1 Jan. -	31 Dec. -	230	S.	645	2808·70	–	–	–	–	–	1	4·35	34	152·17	4	17·40	65	282·61	101	439·13	458	1991·30	663
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
189	Perseus - - - - -	1 Jan. -	31 Dec. -	152	S.	291	1914·47	–	–	–	–	–	–	–	32	210·53	2	13·16	48	315·79	137	901·32	86	565·79	305
190	Princess Charlotte (Guard Ship at Hong Kong).	1 Jan. -	31 Dec. -	214	S.	110	514·02	–	–	–	–	–	–	–	7	32·71	–	–	35	163·55	36	168·22	32	149·53	110
191	Racehorse - - - -	1 Jan. -	30 Sept. -	92	S.	143	2115·94	–	–	–	–	–	–	14·49	7	101·45	2	28·98	6	86·96	32	492·75	97	1405·80	144
					C. M.	3	–	–	–	–	–	–	1	–	–	–	–	–	–	–	2	–	–	–	3
192	Rattler - - - - -	1 Jan. -	31 Dec. -	140	S.	415	2964·29	–	–	–	–	–	3	21·43	34	242·86	1	7·14	78	557·14	132	942·86	180	1285·71	428
193	Rifleman (Surveying) - -	1 Jan. -	31 Dec. -	76	S.	76	1000·00	–	–	–	–	–	–	–	11	144·74	–	–	17	223·68	16	210·53	37	486·84	81
194	Ringdove - - - - -	1 Jan. -	10 Nov. -	75	S.	148	2208·96	–	–	–	–	–	–	–	5	74·63	–	–	23	343·28	66	985·07	65	970·15	159
195	Scylla - - - - -	1 Jan. -	31 Dec. -	250	S.	780	3120·00	–	–	–	–	–	–	–	43	172·00	3	12·00	49	196·00	201	804·00	489	1956·00	785
196	Slaney - - - - -	8 Nov. -	31 Dec. -	43	S.	12	–	–	–	–	–	–	–	–	–	–	–	–	4	–	7	–	1	–	12
197	Staunch - - - - -	1 Jan. -	31 Dec. -	32	S.	99	3093·75	–	–	–	–	–	3	93·75	11	343·75	–	–	19	593·75	49	1531·25	24	750·00	106
198	Swallow (Surveying) - -	1 Jan. -	31 Dec. -	109	S.	80	733·94	–	–	–	–	–	–	–	9	82·57	1	9·17	34	311·94	26	238·53	16	146·79	86
199	Tartar - - - - -	1 Jan. -	31 Dec. -	245	S.	510	2081·63	–	–	–	–	–	1	4·08	38	155·10	2	8·16	83	338·78	221	902·04	174	710·20	519
200	Vulcan - - - - -	1 Jan. -	3 Nov. -	142	S.	117	975·00	–	–	–	–	–	–	–	19	158·33	–	–	19	158·33	41	341·67	43	358·33	122
201	Weazel - - - - -	1 Jan. -	31 Dec. -	35	S.	49	1400·00	–	–	–	–	–	–	–	2	57·14	–	–	4	114·29	40	1142·86	3	85·71	49
	TOTALS - - -			5,356*	–	9,381	1894·00	–	–	–	–	2	22	4·44	839	169·39	32	6·46	1,566	316·17	2,816	568·54	4,464	901·27	9,741

* The average mean force borne for the whole year was 4,953, and on that number the final proportions are cast.

(PUNISHMENTS.)

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprison-ment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.							
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.															Number.	Lashes.		
182	Kestrel	S.	–	–	–	–	1	36	–	–	–	1	2	5	–	43	28·57	1028·57	–	–	–	10	28·6	2	1	36	- - -	–
183	Leopard	S.	–	–	–	2	3	108	10	294	4	15	17	13	1	411	12·00	432·00	40·00	1176·00	8·00	23	9·2	65	3	108	- - -	5
184	Leven	S.	–	–	–	–	4	180	6	154	1	1	–	5	–	88	90·91	409·091	136·36	3500·00	–	10	22·7	78	–	–	- - -	–
185	Manilla	S.	–	–	–	1	–	–	3	139	–	2	1	5	–	29	–	–	75·00	3475·00	25·00	6	15·0	55	–	–	- - -	9
186	Osprey	S.	–	–	–	–	–	–	4	112	–	3	5	7	–	104	14·29	685·71	71·43	12028·57	–	17	24·3	48	–	–	- - -	1
		C. M.	–	–	–	–	1	48	1	730																		
187	Pearl	S.	–	–	–	–	2	60	4	84	–	2	1	6	–	124	–	–	–	–	–	32	17·2	118	–	–	- - -	1
188	Pelorus	S.	–	–	–	–	–	–	15	482	–	3	9	19	1	615	4·35	208·70	69·60	3682·61	–	30	13·0	124	–	–	- - -	2
		C. M.	–	–	–	–	1	48	1	365																		
189	Perseus	S.	–	–	–	–	3	144	17	448	–	3	2	8	3	263	19·74	947·37	111·84	2947·37	–	27	17·8	71	–	–	- - -	5
190	Princess Charlotte	S.	–	–	–	–	–	–	6	196	2	2	1	8	–	94	–	–	28·04	915·89	–	15	7·0	–	–	–	- - -	2
191	Racehorse	S.	–	–	–	1	2	84	3	88	–	1	2	6	–	135	57·96	2608·70	86·96	5739·13	14·49	21	23·0	14	2	84	- - -	2
		C. M.	–	–	–	–	2	96	3	308																		
192	Rattler	S.	–	–	–	–	6	216	12	286	1	4	4	20	1	378	42·86	1542·86	85·71	2042·86	–	32	22·9	29	4	132	- - -	11
193	Rifleman	S.	–	–	–	–	2	72	1	28	–	–	4	3	–	69	26·32	947·37	13·16	368·42	–	11	14·5	Not stated.	–	–	- - -	–
194	Ringdove	S.	–	–	–	–	1	36	5	196	1	2	1	7	–	137	14·93	537·31	74·63	2925·37	–	7	9·3	135	–	–	- - -	2
195	Scylla	S.	–	–	–	–	4	168	17	267	–	6	15	30	–	723	16·00	672·00	68·00	1068·00	–	50	20·0	87	2	84	- - -	3
196	Slaney	S.	–	–	–	–	–	–	–	–	–	–	–	1	–	11	–	–	–	–	–	2	4·7	5	–	–	- - -	–
197	Staunch	S.	–	–	–	–	–	–	8	308	–	–	1	7	–	90	–	–	250·00	9625·00	–	8	25·0	25	–	–	- - -	3
198	Swallow	S.	–	–	–	–	–	–	3	81	–	2	2	8	–	71	–	–	27·52	750·00	–	6	5·6	91	–	–	- - -	4
199	Tartar	S.	–	–	–	–	3	72	2	42	–	5	11	21	–	484	12·24	293·88	8·16	171·43	–	40	16·3	38	2	36	- - -	1
200	Vulcan	S.	–	–	–	–	1	36	1	30	–	–	2	9	–	113	8·33	300·00	8·33	250·00	–	14	9·9	130	–	–	- - -	1
201	Weazel	S.	–	–	–	–	–	–	–	–	–	–	–	1	–	49	–	–	–	–	–	1	2·9	Not stated.	–	–	- - -	2
	TOTALS		–	–	–	5	69	2,562	210	8,169	139	119	180	379	14	8,640	13·93	517·26	42·40	1649·30	1·01	758	14·2	–	22	738	- - -	87
	Deduct Boys						22	738																			Recovered	22
	Men						47	1,824																			Lost to the Service	65

(OFFENCES.)

Station, "EAST INDIES."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-Commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
202	Hornet - - - - - -	1 Jan. -	12 Sept. -	140	S.	150	1530·61	–	–	–	–	–	–	–	20	204·08	–	–	18	183·67	40	408·16	82	836·73	160
203	Pantaloon - - - - -	1 Jan. -	31 Dec. -	130	S. C. M.	403 1	3107·69 –	– –	– –	– –	– –	– –	– –	– –	51 1	400·00 –	– –	– –	36 1	284·62 –	101 –	776·92 –	219 –	1684·62 –	407 2
204 } 44 }	Princess Royal - - - -	1 Apr. -	31 Dec. -	785	S.	658	1404·66	–	–	–	–	–	–	–	92	148·47	5	10·19	65	100·44	101	467·25	423	724·89	686
205	Severn - - - - - -	1 Jan. -	31 Dec. -	455	S.	976	2145·55	–	–	–	–	–	–	–	143	314·29	3	6·59	114	250·55	232	509·89	504	1107·69	996
206	Vigilant - - - - - -	1 Jan. -	31 Dec. -	82	S. C. M.	292 1	3573·17 –	– –	– –	– –	– –	– –	– –	– –	50 1	621·95 –	1 –	12·20 –	36 –	439·02 –	46 –	560·98 –	166 –	2024·39 –	299 1
207	Wasp - - - - - -	1 Jan. -	31 Dec. -	162	S.	345	2130·25	–	–	–	–	–	–	–	31	191·36	1	6·17	10	61·73	86	530·86	221	1364·20	349
		TOTALS - - -		1,754*	–	2,826	1862·89	–	–	–	–	–	–	–	389	256·43	10	6·59	280	184·58	606	399·46	1,615	1064·60	2,900

* The average mean force borne for the whole year was 1,517, and on that number the final proportions are cast.

(PUNISHMENTS.)

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprison-ment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
				Number.	Years.		Number. (a)	Lashes (a)	Number.	Days.																		
202	Hornet - - - - - -	S.	–	–	–	–	–	–	2	34	2	2	4	4	–	141	–	–	20·41	346·94	–	16	11·4	176	–	–		
203	Pantaloon - - - - -	S. C.M.	– –	– –	– –	– –	1 1	36 48	3 1	140 730	– –	1 –	4 –	12 –	– 1	382	15·39	646·15	30·77	6692·31	–	23	17·7	170	1	36	- - - -	4
204 44	Princess Royal - - - -	S.	–	–	–	–	9	258	4	70	17	5	13	39	–	607	14·56	401·75	5·82	101·89	–	117	14·9	102	2	54	Proportions include entries at No. 44.	12
205	Severn - - - - - -	S.	–	–	–	–	14	433	37	730	–	9	12	51	1	903	30·77	951·65	81·32	1604·40	–	75	16·5	76	7	133	- - - -	2
206	Vigilant - - - - - -	S. C. M.	– –	– –	– –	– –	6 1	240 48	6 1	101 730	– –	5 –	10 –	10 –	1 1	265	85·37	3512·20	85·37	10134·15	–	15	18·3	151	–	–	- - - -	7
207	Wasp - - - - - -	S.	–	–	–	–	1	30	2	43	–	2	4	2	–	337	6·17	185·18	12·34	265·43	–	14	8·6	174	1	30	- - - -	3
	TOTALS - - -		–	–	–	–	33	1,093	56	2, 78	19	24	47	118	4	2,635	21·75	720·50	36·91	1699·41	–	260	14·8	–	11	253	Lost to the Service	28
	Deduct Boys - - -						11	253																				
	Men - - -						22	840																				

(OFFENCES.) Station, "CAPE OF GOOD HOPE."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
208	Ariel - - - - - -	1 Jan. -	1 Dec. -	80	S.	114	1561·64	–	–	–	–	–	–	–	11	150·68	1	13·70	15	205·48	10	136·99	79	1082·19	116
209	Gorgon - - - - - -	1 Jan. -	11 Feb. -	180	S.	10	–	–	–	–	–	–	–	–	2	–	–	–	1	–	–	–	8	–	11
210 39	Lyra - - - - - -	1 April -	31 Dec. -	90	S.	128	1921·35	–	–	–	–	–	–	–	16	258·43	1	22·47	17	213·48	21	280·90	73	1146·07	128
211	Narcissus - - - - -	1 Jan. -	6 Aug. -	480	S. C. M.	308 1	1076·66 –	– –	– –	– –	– –	– –	1 –	3·48 –	47 1	167·25 –	3 –	10·45 –	44 –	153·31 –	97 –	337·98 –	119 –	414·63 –	311 1
212	Orestes - - - - - -	1 Jan. -	31 Dec. -	219	S.	478	2182·65	–	–	–	–	–	4	18·26	47	214·61	3	13·70	46	210·05	110	502·28	280	1278·54	490
213	Penguin - - - - - -	1 Jan. -	31 Dec. -	50	S.	113	2260·00	–	–	–	–	–	–	–	16	320·00	2	40·00	14	280·00	10	200·00	71	1420·00	113
214	Rapid - - - - - -	1 Jan. -	31 Dec. -	100	S.	106	1060·00	–	–	–	–	–	–	–	20	200·00	–	–	23	230·00	21	210·00	45	450·00	109
215	Seringapatam - - - -	1 Jan. -	31 Dec. -	110	S.	116	1054·55	–	–	–	–	–	† 5	45·45	10	90·91	4	36·36	33	300·00	41	372·73	32	290·91	125
216	Valorous - - - - - -	1 Jan. -	31 Dec. -	203	S. C. M.	384 1	1896·55 –	– –	– –	– –	– –	– –	– –	– –	45 1	226·60 –	3 –	14·78 –	64 –	315·27 –	103 –	507·39 –	169 –	832·51 –	384 1
		TOTALS - - -		1,512*	–	1,759	1556·64	–	–	–	–	–	10	8·85	216	191·15	17	15·04	257	227·43	413	365·49	876	775·22	1,789

* The average mean force borne for the whole year was 1,130, and on that number the final proportions are cast.
† 4 were deserters from other ships.

47.

(PUNISHMENTS.)

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.							
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.															Number.	Lashes.		
208	Ariel	S.	–	–	–	–	–	–	1	28	–	5	8	5	1	98	–	–	13·70	383·56	–	8	10·0	206	–	–	- - -	–
209	Gorgon	S.	–	–	–	–	–	–	–	–	–	1	3	–	–	7	–	–	–	–	–	3	1·7	38	–	–	- - -	–
210 } 39 }	Lyra	S.	–	–	–	–	2	48	–	–	–	2	3	5	–	117	33·71	943·82	–	–	–	17	15·6	109	2	48	Proportions include entries at No. 39.	–
211	Narcissus	S.	–	–	–	1	1	48	6	223	–	8	6	15	–	281	6·96	334·49	24·39	1090·59	3·48	42	8·7	65	–	–	- - -	3
		C. M.	–	–	–	–	1	48	1	90																		
212	Orestes	S.	–	–	–	–	–	–	5	236	–	5	11	14	–	454	–	–	22·83	1077·63	–	17	7·8	181	–	–	- - -	3
213	Penguin	S.	–	–	–	–	2	18	1	28	–	1	1	9	–	110	40·00	360·00	20·00	560·00	–	9	18·0	143	2	18	- - -	–
214	Rapid	S.	–	–	–	–	–	–	6	112	4	3	7	4	–	91	–	–	60·00	1120·00	–	17	17·0	245	–	–	- - -	1
215	Seringapatam	S.	–	–	–	–	7	288	2	112	–	2	2	4	–	101	63·64	2618·18	18·18	1018·18	–	8	7·3	–	7	288	- - -	1
216	Valorous	S.	–	–	–	1	3	115	15	368	9	8	11	31	1	344	14·78	566·50	78·82	3610·84	9·85	37	18·2	132	–	–	- - -	2
		C. M.	–	–	–	1	–	–	1	365																		
	TOTALS		–	–	–	3	16	565	38	1,562	13	35	52	87	2	1,603	14·16	500·00	33·63	1328·30	2·66	158	10·4	–	11	354	- - -	10
	Deduct Boys						11	354																				
	Men						5	211																				

(OFFENCES.)

STATION, "WEST COAST OF AFRICA."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period. (1864.)		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
													Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
217	Antelope	1 Jan.	31 Dec.	56	S.	42	750·00	–	–	–	–	–	–	–	13	232·14	–	–	2	35·71	3	53·57	25	446·43	43
218	Archer	1 Jan.	31 Dec.	148	S.	568	3837·84	–	–	–	–	–	–	–	39	263·51	4	27·03	26	175·68	2	13·51	502	3391·89	573
219	Dart	1 Jan.	31 Dec.	54	S.	154	2870·37	–	–	–	–	1	–	–	19	370·37	–	–	11	203·70	–	–	126	2333·33	157
					C. M.	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
220 23	Espoir	1 Jan.	23 Apr.	50	S.	35	–	–	–	–	–	–	–	–	4	–	1	–	3	–	–	–	28	–	36
221	Griffon	1 Jan.	31 Dec.	54	S.	14	259·26	–	–	–	–	–	–	–	6	111·11	–	–	5	92·59	1	18·52	7	129·63	19
222	Investigator	1 Jan.	30 June	25	S.	25	2083·33	–	–	–	–	–	–	–	4	333·33	–	–	4	333·33	4	333·33	15	1250·00	27
223	Isis (Receiving Ship at Sierra Leone).	1 Jan.	31 Dec.	10	S.	None.																			
224	Jaseur	1 Jan.	31 Dec.	55	S.	157	2854·54	–	–	–	–	–	–	–	4	72·73	1	18·18	4	72·73	33	600·00	116	2109·09	158
225	Lee	1 Jan.	31 Dec.	50	S.	94	1880·00	–	–	–	–	–	–	–	6	120·00	–	–	8	160·00	6	120·00	74	1480·00	94
226	Mæander (Guard Ship at Ascension).	1 Jan.	31 Dec.	281	S.	86	306·50	–	–	–	–	–	–	–	16	56·94	1	3·56	32	113·88	–	–	44	156·58	93
227	Mullet	1 Jan.	31 Dec.	52	S.	179	3442·31	–	–	–	–	–	–	–	30	576·92	2	38·46	10	192·31	6	115·38	132	2538·46	180
228	Pandora	1 Jan.	31 Dec.	59	S.	108	1830·51	–	–	–	–	2	–	–	11	186·44	1	16·95	11	186·44	2	33·90	82	1389·83	109
229	Philomel	1 Jan.	11 Aug.	57	S.	45	1285·71	–	–	–	–	–	–	–	6	171·43	1	28·57	3	85·71	–	–	35	1000·00	45
230 48	Ranger	1 April	31 Dec.	55	S.	45	1086·96	–	–	–	–	–	–	–	5	108·69	–	–	2	43·48	–	108·69	38	826·09	45
231	Rattlesnake (Flag Ship)	1 Jan.	31 Dec.	205	S.	283	1380·49	–	–	–	–	–	–	–	16	78·05	1	4·88	40	195·12	63	307·32	172	839·02	292
232	Snipe	1 Jan.	31 Dec.	58	S.	106	1827·59	–	–	–	–	–	–	–	8	137·93	–	–	11	189·66	1	17·24	86	1482·76	106
233	Sparrow	1 Jan.	31 Dec.	54	S.	204	3777·78	–	–	–	–	–	–	–	31	574·07	2	37·04	18	333·33	6	111·11	152	2814·81	209
234	Speedwell	1 Jan.	31 Dec.	53	S.	161	3037·74	–	–	–	–	–	–	–	18	339·62	2	37·74	10	188·68	–	–	131	2471·70	161
235	Torch	1 Jan.	9 Mar.	46	S.	20	–	–	–	–	–	–	–	–	3	–	–	–	7	–	–	–	10	–	20
236	Vindictive (Coal Depôt at Jellah Coffee).	1 Jan.	31 Dec.	30	S.	16	533·33	–	–	–	–	–	–	–	1	33·33	–	–	4	133·33	5	166·67	6	200·00	16
237	Wye (Store Ship)	1 Jan.	31 Dec.	75	S.	93	1240·00	–	–	–	–	–	–	–	28	373·33	–	–	15	200·00	–	–	55	733·33	98
238	Zebra	1 Jan.	31 Dec.	139	S.	283	2035·97	–	–	–	–	–	–	–	36	258·99	–	–	13	93·53	–	–	236	1697·84	285
	TOTALS			*1,666	–	2,619	1694·05	–	–	–	–	3	–	–	305	197·28	16	10·35	239	154·59	132	85·38	2,072	1340·23	2,767

* The average mean force borne for the whole year was 1,546, and on that number the final proportions are cast.

47.

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
				Penal Servitude.			Corporal.		Imprisonment.																			
			Death.	Number.	Years.	Discharged with Disgrace.	Number. (a)	Lashes. (a)	Number.	Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
217	Antelope	S.	–	–	–	–	1	36	–	–	2	3	1	4	–	34	17·86	642·86	–	– –	–	12	21·4	Not stated.	1	36	- - - -	–
218	Archer	S.	–	–	–	–	5	174	–	–	–	3	7	16	–	537	33·78	1175·68	–	– –	–	21	14·2	220	1	48	- - - -	–
219	Dart	S.	–	–	–	–	3	132	–	–	6	1	6	8	–	134	74·07	3333·33	18·52	10129·63	–	20	37·0	306	1	36	- - - -	–
		C. M.	–	–	–	–	1	48	1	547																		
220 23	Espoir	S.	–	–	–	–	1	48	2	56	1	–	–	–	1	31	–	–	–	– –	–	13	26·0	69	–	–	- - - -	–
221	Griffon	S.	–	–	–	–	–	–	–	–	–	2	1	2	–	11	–	–	–	– –	–	2	3·7	303	–	–	- - - -	–
222	Investigator	S.	–	–	–	–	–	–	–	–	–	2	1	1	–	23	–	–	–	– –	–	2	8·0	120	–	–	- - - -	–
223	Isis	S.																										
224	Jaseur	S.	–	–	–	–	3	114	–	–	–	–	1	4	–	150	54·55	2072·73	–	– –	–	10	18·2	Not stated.	2	84	- - - -	–
225	Lee	S.	–	–	–	–	–	–	–	–	–	–	1	5	–	93	–	–	–	– –	–	10	20·0	Not stated.	–	–	- - - -	–
226	Mæander	S.	–	–	–	–	–	–	1	21	1	2	7	6	–	69	–	–	3·56	74·73	–	15	5·3	–	–	–	- - - -	–
227	Mullet	S.	–	–	–	–	–	–	1	12	1	4	5	12	–	167	–	–	19·23	230·77	–	10	19·2	Not stated.	–	–	- - - -	2
228	Pandora	S.	–	–	–	1	1	48	1	14	1	–	4	5	–	97	16·95	813·56	16·95	237·29	16·95	8	13·6	171	–	–	- - - -	–
229	Philomel	S.	–	–	–	–	1	36	–	–	–	–	1	3	–	40	28·57	1028·57	–	– –	–	11	19·3	Not stated.	1	36	- - - -	–
230 48	Ranger	S.	–	–	–	–	–	–	–	–	1	2	3	–	–	40	–	–	–	– –	–	6	10·9	94 in 9 months.	–	–	Proportions include entries at No. 48.	–
231	Rattlesnake	S.	–	–	–	–	1	24	2	56	–	1	5	17	–	259	4·88	117·07	9·76	273·17	–	7	3·4	126	1	24	- - - -	2
232	Snipe	S.	–	–	–	–	–	–	–	–	–	1	5	8	–	95	–	–	–	– –	–	9	15·5	241	–	–	- - - -	–
233	Sparrow	S.	–	–	–	–	2	60	–	–	1	3	4	10	–	187	37·04	1111·11	–	– –	–	12	22·2	Not stated.	2	60	- - - -	–
234	Speedwell	S.	–	–	–	–	4	120	–	–	–	1	3	4	–	150	75·47	2264·15	–	– –	–	6	11·3	Not stated.	2	36	- - - -	–
235	Torch	S.	–	–	–	–	–	–	–	–	1	–	–	4	–	15	–	–	–	– –	–	16	34·8	52	–	–	- - - -	–
236	Vindictive	S.	–	–	–	–	1	48	–	–	1	1	–	1	–	12	33·33	1600·00	–	– –	–	2	6·7	–	–	–	- - - -	1
237	Wye	S.	–	–	–	–	3	54	–	–	–	3	4	10	–	83	40·00	720·00	–	– –	–	9	12·0	172	1	30	- - - -	–
238	Zebra	S.	–	–	–	–	6	204	–	–	–	3	1	6	1	264	43·17	1467·63	–	– –	–	17	12·2	357	4	132	- - - -	–
	TOTALS		–	–	–	1	33	1,146	8	706	16	32	60	126	2	2,491	21·35	741·27	5·17	456·66	0·65	218	13·1	–	16	522	Lost to the Service	5
	Deduct Boys						16	522																				
	Men						17	624																				

Station, "PACIFIC."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
239	Alert - - - - -	1 Jan. -	31 Dec. -	146	S.	398	2726·03	–	–	–	–	–	2	13·70	33	226·03	–	–	41	280·82	59	404·11	268	1835 62	403
240	Bacchante - - - -	1 Jan. -	3 Aug. -	432	S. C. M.	251 1	988·24 –	– –	– –	– –	– –	– –	– –	– –	27 1	109·80 –	1 –	3·92 –	37 –	145·10 –	65 –	254·90 –	130 –	509·80 –	260 1
241	Cameleon - - - -	1 Jan. -	31 Dec. -	120	S.	172	1433 33	–	–	–	–	–	1	8·33	26	216·67	–	–	39	325·00	86	716·67	36	300·00	188
242	Charybdis - - - -	1 Jan. -	31 Dec. -	203	S.	395	1945 81	–	–	–	–	–	–	–	40	197·04	2	9·85	72	354·68	98	482·76	190	935·96	402
243 13	Clio - - - - -	1 Oct. -	31 Dec. -	257	S.	301	3080·28	–	–	–	–	–	–	–	19	201·39	2	55·55	24	215·28	18	569·44	239	2069·44	302
244	Columbine - - - -	1 Jan. -	31 Dec. -	107	S.	468	4373·83	–	–	–	–	–	–	–	41	383·18	–	–	57	532·71	42	392·52	338	3158·88	478
245	Devastation - - - -	1 Jan. -	31 Dec. -	125	S. C. M.	207 1	1664·00 –	– –	– –	– –	– –	– –	1 1	16·00 –	29 –	232·00 –	1 –	8·00 –	30 –	240·00 –	91 –	728 00 –	71 –	568·00 –	223 1
246	Forward - - - - -	1 Jan. -	31 Dec. -	25	S.	7	280·00	–	–	–	–	–	–	–	1	40·00		–	3	120·00	5	200·00	–	–	9
247	Grappler - - - - -	1 Jan. -	31 Dec. -	30	S.	45	1500·00	–	–	–	–	–	1	33·33	11	366·67	2	66·67	15	500·00	8	266·67	14	466·67	51
248	Hecate - - - - -	1 Jan. -	18 Jan. -	96	- -	None.																			
249	Leander - - - - -	1 Jan. -	31 Dec. -	457	S. C. M.	702 3	1542·67 –	– –	– –	– –	– –	– –	– 3	6·56 –	66 –	144·42 –	5 –	10·94 –	113 –	247·26 –	149 –	326·04 –	386 –	844·64 –	719 3
250	Naiad - - - - -	1 Jan. -	31 Dec. -	20	S.	7	–	–	–	–	–	–	–	–	–	–	–	–	2	–	3	–	2	–	7
251	Nereus - - - - -	1 Jan. -	31 Dec. -	28	S.	40	–	–	–	–	–	–	–	–	–	–	–	–	9	–	36	–	–	–	45
252	Shearwater - - - -	1 Jan. -	31 Dec. -	104	S.	304	2923·08	–	–	–	–	–	–	–	35	336·54	–	-	35	336·54	102	980·77	146	1403·85	318
253	Sutlej - - - - -	1 Jan. -	31 Dec. -	482	S. C. M.	520 2	1082·99 –	– –	– –	– –	– –	– –	– 2	4·15 –	41 –	85·06 –	5 –	10·37 –	86 –	178·42 –	169 –	350 62 –	245 –	508·30 –	546 2
254	Tribune - - - - -	1 Jan. -	31 Dec. -	230	S.	402	1747·83	–	–	–	–	–	12	52 17	38	165·22	1	4·35	49	213·04	107	465·22	205	891·30	412
	TOTALS - - -			*2,862	–	4,226	1759·37	–	–	–	–	–	23	9·58	408	169·86	19	7·91	612	254·83	1,038	432·14	2,270	945·05	4,370

* The average mean force borne for the whole year was 2,402, and on that number the final proportions are cast.

(PUNISHMENTS.)

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.							
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.															Number.	Lashes.		
239	Alert - - - - -	S.	–	–	–	–	3	84	–	–	2	–	6	12	1	381	20·55	575·34	–	–	–	21	14·4	124	1	24	- - -	16
240	Bacchante - - - -	S.	–	–	–	–	2	84	–	–	9	3	8	13	–	225	7·84	329·41	3·92	352·94	–	79	18·5	130	2	84	- - -	1
		C. M.	–	–	–	–	–	–	1	90																		
241	Cameleon - - - -	S.	–	–	–	–	–	–	3	196	–	2	3	3	–	162	–	–	25·00	1633·33	–	9	7·5	85	–	–	- - -	5
242	Charyddis - - - -	S.	–	–	–	–	5	192	2	42	3	10	13	10	–	370	24·63	945·81	9·85	206·89	–	34	16·7	131	–	–	- - -	15
243 } 13 }	Clio - - - - -	S.	–	–	–	–	1	48	–	–	7	3	3	12	–	285	13·89	666·66	–	–	–	41	15·9	61	1	48	Proportions include entries at No. 13.	5
244	Columbine - - - -	S.	–	–	–	–	3	96	–	–	–	7	6	9	–	449	28·04	897·20	–	–	–	14	13·1	214	–	–	- - -	8
245	Devastation - - - -	S.	–	–	–	–	3	144	–	–	4	5	2	11	–	189	24·00	1152·00	8·00	4376·00	–	17	13·6	not stated.	–	–	- - -	12
		C. M.	–	–	–	–	–	–	1	547																		
246	Forward - - - - -	S.	–	–	–	–	–	–	–	–	–	1	2	–	–	5	–	–	–	–	–	1	4·0	101	–	–	- - -	4
247	Grappler - - - - -	S.	–	–	–	–	–	–	1	90	–	–	3	8	–	40	–	–	33·33	3000·00	–	7	23·3	38	–	–	- - -	6
248	Hecate - - - - -	S.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	4·2	4	–	–	- - -	–
249	Leander - - - - -	S.	–	–	–	1	1	48	–	–	25	15	32	27	–	636	8·75	367·61	6·56	3192·56	2·19	42	9·2	28	1	48	- - -	18
		C. M.	–	–	–	–	3	120	3	1,459	–	–	–	2	1													
250	Naiad - - - - -	S.	–	–	–	–	–	–	–	–	–	–	1	1	–	7	–	–	–	–	–	1	5·0	none	–	–	- - -	–
251	Nereus - - - - -	S.	–	–	–	–	–	–	–	–	1	1	3	3	–	38	–	–	–	–	–	2	7·1	none	–	–	- - -	4
252	Shearwater - - - -	S.	–	–	–	–	–	–	–	–	4	5	6	13	–	290	–	–	–	–	–	9	8·7	93	–	–	- - -	19
253	Sutlej - - - - -	S.	–	–	–	1	–	–	6	244	30	7	31	35	1	473	–	–	16·60	2775·93	2·7	33	6·8	139	–	–	- - -	29
		C. M.	–	–	–	–	–	–	2	1,094																		
254	Tribune - - - - -	S.	–	–	–	–	5	180	14	812	1	4	8	17	–	378	21·74	782·61	60·87	3530·43	–	47	20·4	207	–	–	- - -	40
	TOTALS - - -		–	–	–	2	26	996	33	4,574	86	63	127	176	3	3,928	10·82	414·66	13·74	1904·25	0·83	361	12·6	–	5	204	- - -	182
	Deduct Boys - -						5	204																			Recovered - - -	23
	Men - - -						21	792																			Lost to the Service - - -	159

STATION, "SOUTH-EAST COAST OF AMERICA."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-Commissioned Officers and Private Marines, Convicted of the undermentioned Crimes and Offences.																	Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.						
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne, per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	
255	Alecto - - - - -	1 Jan. -	31 Dec. -	95	S.	342	3600·00	–	–	–	–	–	–	–	22	231·58	–	–	31	326·32	55	578·95	237	2494·74	345
256 } 5 }	Bombay - - - - -	1 July -	30 Sept.	631	S.	431	2900·58	–	–	–	–	–	–	–	37	190·06	–	11·70	40	140·35	20	733·92	339	1847·95	436
257	Curlew - - - - -	1 Jan. -	31 Dec. -	90	S.	235	2611·11	–	–	–	–	–	–	–	13	144·44	1	11·11	30	333·33	13	144·44	182	2022·22	239
258	Doterel - - - - -	1 Jan. -	31 Dec. -	32	S.	33	1031·25	–	–	–	–	–	–	–	1	31·25	–	–	10	312·50	19	593·75	6	187·50	36
259	Egmont - - - - -	1 Jan. -	31 Dec. -	90	S.	303	3366·67	–	–	–	–	–	–	–	16	177·78	–	–	33	366·67	91	1011·11	171	1900.00	311
260	Porte - - - - -	1 Jan. -	8 Sept.	412	S. C. M.	826 2	2915·49 –	– –	– –	– –	– –	– –	– 2	7·04 –	52 –	183·10 –	2 –	7·04 –	107 –	376·76 –	232 –	816·90 –	442 –	1556·34 –	835 2
261	Satellite - - - - -	1 Jan. -	31 Dec. -	220	S.	426	1936·36	–	–	–	–	–	–	–	35	159 09	–	–	43	195·45	188	854·55	165	750·00	431
262	Sheldrake - - - -	1 Jan. -	31 Dec. -	32	S.	45	1406·25	–	–	–	–	–	–	–	5	156·25	–	–	3	93·75	27	843·75	12	375·00	47
263	Spider - - - - -	1 Jan. -	31 Dec. -	33	S.	39	1181·82	–	–	–	–	–	–	–	8	242·42	–	–	14	424·24	12	363·64	8	242·42	42
264	Stromboli - - - -	1 Jan. -	31 Dec. -	140	S. C. M.	233 1	1671·43 –	– –	– –	– –	– –	– –	– –	– –	23 –	164·29 –	3 1	28·57 –	68 –	485·71 –	48 –	342·86 –	107 –	764·29 –	249 1
265	Triton - - - - -	1 Jan. -	31 Dec. -	77	S.	174	2259·74	–	–	–	–	–	1	12·99	26	337·66	3	38·96	36	467·53	58	753·25	51	662·34	175
	TOTALS - - -			1,852*	–	3,090	2468·05	–	–	–	–	–	3	2·40	238	190·10	10	7·99	415	331·47	763	609·43	1,720	1373·80	3,149

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* The average mean force borne for the whole year was 1,252; on that number the final proportions are cast.

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
				Penal Servitude.			Corporal.		Imprisonment.																			
			Death.	Number.	Years.	Discharged with Disgrace.	Number. (a)	Lashes. (a)	Number.	Days.	Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
255	Alecto	S.	–	–	–	–	–	–	1	17	1	4	5	9	1	326	–	–	10·53	178·95	–	9	9·5	177	–	–	- - -	1
256 } 5	Bombay	S.	–	–	–	–	2	72	2	28	9	1	4	14	–	412	8·77	321·64	8·77	163·74	–	59	9·3	25	–	–	Proportions include entries at No. 5.	6
257	Curlew	S.	–	–	–	–	1	48	–	–	–	7	4	8	–	223	11·11	533·33	–	–	–	14	15·6	104	–	–	- - -	1
258	Doterel	S.	–	–	–	–	–	–	–	–	–	–	2	1	–	32	–	–	–	–	–	2	6·2	76	–	–	- - -	7
259	Egmont	S.	–	–	–	–	–	–	7	230	8	1	5	3	1	288	–	–	77·78	2555·56	–	13	14·4	–	–	–	- - -	2
260	Porte	S.	–	–	–	–	2	72	–	–	38	12	15	27	–	760	7·04	253·52	7·04	3535·21	–	111	26·9	93	1	36	- - -	11
		C. M.	–	–	–	–	–	–	2	1,004	–	–	–	1	1	1	–	–	–	–	–	–	–	–	–	–	- - -	–
261	Satellite	S.	–	–	–	–	–	–	2	48	–	6	11	22	–	404	–	–	9·09	218·14	–	18	8·2	52	–	–	- - -	19
262	Sheldrake	S.	–	–	–	–	–	–	–	–	–	–	1	2	–	43	–	–	–	–	–	2	6·2	51	–	–	- - -	3
263	Spider	S.	–	–	–	–	–	–	–	–	–	1	1	2	–	36	–	–	–	–	–	4	12·1	103	–	–	- - -	1
264	Stromboli	S.	–	–	–	–	6	216	2	56	–	5	7	19	2	221	50·00	1885·71	14·29	400·00	–	21	15·0	156	4	144	- - -	19
		C. M.	–	–	–	–	1	48	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	- - -	–
265	Triton	S.	–	–	–	–	1	36	4	112	–	7	5	11	3	149	12·99	467·53	51·95	1454·55	–	7	9·1	112	–	–	- - -	9
	TOTALS - - -		–	–	–	–	13	492	2 0	1,495	56	44	60	120	8	2,895	10·38	392·97	15·97	1194·09	–	260	14·2	–	5	180	- - -	79
	Deduct Boys - - -						5	180																			Recovered - - -	3
	Men - - -						8	312																			Lost to the Service - - -	76

(OFFENCES.)

STATION, "AUSTRALIA."

Distinguishing Number of Ship.	NAME OF SHIP.	For what Period (1864).		Average Number of Men and Boys borne.	CONVICTIONS.			Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.																		Total Number of Crimes and Offences.
								Offences of the 1st Degree.				Offences of the 2d Degree.							Offences of the 3d Degree.							
													Deserters (apprehended).		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.			
		From	To		Whether Summarily or by Court-Martial.	Number of	Average per 1,000 borne per Year.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.	Number Convicted of	Proportion per 1,000 per Year.		
266	Curaçoa - - - - -	1 Jan. -	31 Dec. -	349	S. C. M.	751 5	2166·19 –	– –	– –	– –	– –	– –	– 3	8·60 –	70 1	203·44 –	– –	– –	37 4	117·48 –	227 –	650·43 –	430 –	1232·09 –	764 8	
267	Eclipse - - - - -	1 Jan. -	31 Dec. -	70	S.	143	2042·86	–	–	–	–	–	–	–	21	300·00	2	28·57	19	271·43	44	628·57	65	928·57	151	
268	Esk - - - - -	1 Jan. -	31 Dec. -	207	S.	546	2637·68	–	–	–	–	2	1	4·83	50	241·55	5	24·15	71	343·00	181	874·40	252	1217·39	562	
269	Falcon - - - - -	1 Jan. -	31 Dec. -	148	S.	552	3729·73	–	–	–	–	–	–	–	38	256·76	2	13·51	52	351·35	83	560·81	386	2608·11	561	
270	Harrier - - - - -	1 Jan. -	31 Dec. -	137	S. C. M.	226 1	1656·93 –	– –	– –	– –	– –	– –	6 1	51·10 –	40 –	291·97 –	– –	– –	44 –	321·17 –	38 –	277·37 –	110 –	802·92 –	238 1	
271	Miranda - - - - -	1 Jan. -	31 Dec. -	158	S. C. M.	168 2	1075·95 –	– –	– –	– –	– –	– –	1 –	6·33 –	38 1	246·84 –	2 1	18·99 –	33 –	208·86 –	40 –	253·16 –	59 –	373·42 –	173 2	
272 53 }	Salamander - - - -	1 April -	31 Dec. -	112	S.	267	3447·37	–	–	–	–	–	–	8·77	29	324·56	2	17·54	28	263·16	70	947·37	151	2017·54	280	
	TOTALS - - -			1,181*	–	2,661	2307·89	–	–	–	–	2	12	10·41	288	249·78	14	12·14	288	249·78	683	592·37	1,453	1260·19	2,740	

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* The average mean force borne for the whole year was 1,153, and on that number the final proportions are cast.

(PUNISHMENTS.)

Distinguishing Number of Ship.	NAME OF SHIP.	Whether Punished Summarily or by Court-Martial.	PUNISHMENTS.														Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in 2d Class for Conduct.		Number of Days at Sea.	(a) Including Boys.		REMARKS.	Total Desertions.
			Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.	Flogged.	Lashes Inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.				Number.	Lashes.		
				Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																		
266	Curaçoa	S.	–	–	–	–	2	84	13	350	1	1	11	14	–	728	17·19	756·45	51·57	7011·46	2·87	40	11·5	30	1	36	- - -	19
		C. M.	–	–	–	1	4	180	5	2,097	–	–	–	1	1	1												
267	Eclipse	S.	–	–	–	–	2	84	2	56	–	4	2	9	–	126	28·57	1200·00	28·57	800·00	–	9	12·9	77	2	84	- - -	16
268	Esk	S.	–	–	–	–	3	132	18	560	–	4	11	28	1	522	14·49	637·68	86·96	2705·31	–	43	20·8	138	3	132	- - -	10
269	Falcon	S.	–	–	–	–	5	174	7	183	–	4	9	23	–	529	33·78	1175·68	47·30	1236·49	–	26	17·6	157	1	24	- - -	30
270	Harrier	S.	–	–	–	–	6	183	3	70	–	2	2	16	–	204	51·10	1686·13	29·20	3175·18	–	21	15·3	64	2	96	- - -	4
		C. M.	–	–	–	–	1	48	1	365																		
271	Miranda	S.	–	–	–	–	6	276	11	336	–	5	8	20	–	143	37·97	1746·84	82·28	4405·06	–	39	24·7	60	3	132	- - -	5
		C. M.	–	–	–	–	–	–	2	360	–	–	–	1														
272 } 53 }	Salamander	S.	–	–	–	–	1	36	2	48	–	–	4	8	–	258	8·77	315·79	26·32	3622·81	–	15	13·3	113	–	–	{ Proportions include entries at No. 53 }	29
	TOTALS - - -		–	–	–	1	30	1,197	64	4,425	3	20	47	120	2	2,511	26·02	1038·16	55·51	3837·81	0·87	193	16·3	–	12	504	- - -	113
	Deduct Boys - - -						12	504																			Recovered - - -	12
	Men - - -						18	693																			Lost to the Service - - -	101

(OFFENCES).

ABSTRACT OF COURTS-MARTIAL (1864) "OFFICERS" Excluded.

Distinguishing Number.	STATION or SQUADRON.	For what Period. (1864.)		Number of Convictions.	Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, Convicted of the under-mentioned Crimes and Offences.											Total Number of Crimes and Offences.
					Offences of the 1st Degree.					Offences of the 2d Degree.			Offences of the 3d Degree.			
										Deserters (apprehended).	Insubordination and Disrespect.	Theft.	Drunkenness.	Absence without, or over, Leave.	Minor.	
		From	To		Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Number Convicted.	Number Convicted.	Number Convicted.	Number Convicted.	Number Convicted.	Number Convicted.	
1	Home - - - - - -	1 January -	31 December	10	–	–	2	–	–	4	2	3	1	- -	–	12
2	Channel Squadron - - -	1 January -	31 December	5	–	–	–	–	–	1	1	3	- -	- -	–	5
3	Coast Guard Ships - - -	1 January -	31 December	2	–	–	–	–	–	1	2	–	- -	- -	–	3
4	Mediterranean - - - -	1 January -	31 December	18	–	–	–	–	–	3	13	2	5	3	–	26
5	North America and West Indies	1 January -	31 December	30	–	–	–	–	2	15	8	13	3	3	1	45
6	China - - - - -	1 January -	31 December	9	–	–	–	–	–	3	3	–	1	4	–	11
7	East Indies - - - -	1 January -	31 December	2	–	–	–	–	–	- -	2	–	1	- -	–	3
8	Cape of Good Hope - - -	1 January -	31 December	2	–	–	–	–	–	- -	2	–	- -	- -	–	2
9	West Coast of Africa - -	1 January -	31 December	1	–	–	–	–	–	- -	1	–	- -	- -	–	1
10	Pacific - - - - -	1 January -	31 December	7	–	–	–	–	–	6	1	–	- -	- -	–	7
11	South East Coast of America -	1 January -	31 December	3	–	–	–	–	–	2	- -	1	- -	- -	–	3
12	Australia - - - - -	1 January -	31 December	8	–	–	–	–	–	4	2	1	4	- -	–	11
		Totals - - -		97	–	–	2	–	2	39	37	23	15	10	1	129

(PUNISHMENTS.)

Distinguishing Number.	STATION or SQUADRON.	PUNISHMENTS.													
		Death.	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to 2d Class for Conduct.	Discharged as Objectionable.	Minor.
			Number.	Years.		Number.	Lashes.	Number.	Days.						
1	Home	–	2	20	2	2	54	8	3,102	–	2	1	1	3	–
2	Channel Squadron	–	–	–	2	2	72	5	1,459	–	1	–	1	1	–
3	Coast Guard Ships	–	2	10	–	–	–	–	–	–	–	–	–	–	–
4	Mediterranean	–	–	–	2	8	372	18	8,695	–	2	–	7	4	1
5	North America and West Indies	–	12	42	2	12	564	14	5,472	–	–	2	4	1	–
6	China	–	–	–	–	6	276	9	2,427	–	–	–	1	–	–
7	East Indies	–	–	–	–	2	96	2	1,460	–	–	–	–	2	–
8	Cape of Good Hope	–	–	–	1	1	48	2	455	–	–	–	–	–	–
9	West Coast of Africa	–	–	–	–	1	48	1	547	–	–	–	–	–	–
10	Pacific	–	–	–	–	3	120	7	3,190	–	–	–	2	1	–
11	South East Coast of America	–	–	–	–	1	48	2	1,004	–	–	–	2	1	1
12	Australia	–	–	–	1	5	228	8	2,822	–	–	–	1	2	1
	Totals	–	16	72	10	43*	1,926*	76	30,683	–	5	3	19	15	3

Note.—The convictions and punishments recorded here, are included in the foregoing tables and in the following abstract.

* Including one boy who received 48 lashes.

AN ABSTRACT of the Crimes and Punishments in the several Squadrons or Divisions of the Fleet at Home and Abroad,

Distinguishing No.	SQUADRON OR DIVISION.	Year.	Average Number of Men and Boys borne.	CONVICTIONS.		Number of Petty Officers, Seamen, and Boys, and Non-commissioned Officers and Private Marines, convicted of the undermentioned Crimes and Offences.																	Total Number of Crimes and Offences.
				Number of.	Average per 1,000 borne, per Year.	Offences of the 1st degree.				Offences of the 2nd degree.							Offences of the 3rd degree.						
						Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Uncleanness.	Desertion.		Insubordination and Disrespect.		Theft.		Drunkenness.		Absence without, or over, Leave.		Minor.		
											No. Convicted of.	Proportion per 1,000 per Year.	No. Convicted of.	Proportion per 1,000 per Year.	No. Con. victed of.	Proportion per 1,000 per Year.	No. Convicted of.	Proportion per 1,000 per Year.	No. Convicted of.	Proportion per 1,000 per Year.	No. Convicted of.	Proportion per 1,000 per Year.	
1	Home*	1863	13,469	23,219	1723·88	–	–	–	–	11	225	16·71	1,100	81·67	190	14·11	1,397	103·72	12,244	909·05	8,689	645·11	23,85
		1864	12,846	20,197	1572·24	–	–	2	–	13	143	11·13	1,087	84·62	138	10·74	1,123	87·42	10,293	801·26	7,884	613·73	20,68
2	The Channel Squadron	1863	3,984	13,886	3485·44	–	–	–	–	2	47	11·80	669	167·92	58	14·56	858	215·36	6,637	1665·91	5,937	1490·21	14,20
		1864	3,789	10,949	2889·63	–	–	–	–	5	49	12·93	610	168·91	50	13·19	609	160·73	5,031	1327·79	4,744	1252·05	11,12
3	Coast Guard Ships	1863	4,001	8,498	2123·97	–	–	–	–	3	88	21·99	457	114·22	33	8·25	544	135·97	5,648	1411·65	2,007	501·62	8,78
		1864	3,954	8,127	2055·39	–	–	–	–	–	52	13·15	476	120·38	30	7·59	559	141·38	5,141	1300·20	2,119	535·91	8,37
4	Drill Ships	1863	228	65	285·09	–	–	–	–	–	–	–	6	–	–	–	9	–	46	–	8	–	6
		1864	227	42	185·02	–	–	–	–	–	–	–	3	–	–	–	10	–	30	–	4	–	4
5	The Whole of the Home Force	1863	21,682	45,668	2106·26	–	–	–	–	16	360	16·60	2,232	102·94	281	12·96	2,808	129·51	24,575	1133·43	16,641	767·50	46,91
		1864	20,816	39,315	1888·69	–	–	2	–	18	244	11·72	2,206	105·97	218	10·47	2,301	110·54	20,495	984·58	14,751	708·64	40,2
6	Mediterranean	1863	8,301	19,288	2323·58	–	–	2	–	5	15	1·81	1,266	152·51	88	10·60	2,417	291·17	5,476	659·68	10,591	1275·87	19,8
		1864	7,814	20,987	2685·82	–	–	–	–	2	12	1·54	1,472	188·38	96	12·29	2,549	326·21	5,388	689·53	12,209	1562·45	21,7
7	North America and West Indies	1863	6,068	14,233	2345·58	–	–	–	–	10	66	10·88	1,489	245·39	74	12·20	1,480	243·90	4,935	813·28	6,492	1069·87	14,5
		1864	5,924	14,815	2500·84	–	–	–	–	6	40	6·75	1,408	237·68	77	13·00	1,520	256·58	4,598	776·16	7,531	1271·27	15,1
8	China†	1864	4,953	9,381	1894·00	–	–	–	–	2	22	4·44	839	169·39	32	6·46	1,566	316·17	2,816	568·54	4,464	901·27	9,7
9	East Indies†	1864	1,517	2,826	1862·89	–	–	–	–	–	–	–	389	256·43	10	6·59	280	184·58	606	399·46	1,615	1064·60	2,9
10	Cape of Good Hope	1863	1,345	2,322	1726·39	–	–	–	–	2	8	5·95	283	210·41	10	7·43	277	205·95	540	401·49	1,270	944·24	2,3
		1864	1,130	1,759	1556·64	–	–	–	–	–	10	8·85	216	191·15	17	15·04	257	227·43	413	365·49	876	775·22	1,7
11	West Coast of Africa	1863	1,705	2,876	1686·84	–	–	2	–	–	1	0·58	355	208·21	20	11·73	272	159·52	170	99·71	2,111	1238·12	2,9
		1864	1,546	2,619	1694·05	–	–	–	–	3	–	–	305	197·28	16	10·35	239	154·59	132	85·38	2,072	1340·23	2,7
12	Pacific	1863	3,091	5,440	1759·95	–	–	–	–	1	29	9·38	569	184·08	52	16·79	723	233·95	1,580	511·16	2,634	852·15	5,5
		1864	2,402	4,226	1759·37	–	–	–	–	–	23	9·58	408	169·86	19	7·91	612	254·83	1,038	432·14	2,270	945·05	4,3
13	South East Coast of America	1863	1,231	2,610	2120·23	–	–	–	–	2	5	4·06	269	218·52	17	13·81	375	304·63	896	727·86	1,125	913·89	2,6
		1864	1,252	3,090	2468·05	–	–	–	–	–	3	2·40	238	190·10	10	7·99	415	331·47	763	609·43	1,720	1373·80	3,1
14	Australia	1863	750	2,054	2738·67	–	–	–	–	–	19	25·33	195	260·00	13	17·33	207	276·00	405	540·00	1,272	1696·00	2,1
		1864	1,153	2,661	2307·89	–	–	–	–	2	12	10·41	288	249·78	14	12·14	288	249·78	683	592·37	1,453	1260·19	2,7
15	The Whole Force Abroad	1863	27,781	61,035	2197·01	15	–	4	–	25	171	6·16	5,641	203·05	339	12·20	7,334	263·96	17,285	622·19	31,911	1148·63	62,7
		1864	27,691	62,364	2252·14	–	–	–	–	15	122	4·41	5,563	200·90	291	10·51	7,726	279·01	16,437	593·59	34,210	1235·42	64,3
16	The Whole Force at Home and Abroad	1863	49,463	106,703	2157·23	15	–	4	–	41	531	10·74	7,873	159·17	620	12·53	10,142	205·04	41,860	846·29	48,552	981·58	109,6
		1864	48,507	101,679	2096·17	–	–	2	–	33	366	7·55	7,769	160·16	509	10·49	10,027	206·71	36,932	761·37	48,961	1009·36	104,5

* Other than the Channel Squadron, Coast Guard Ships, and Drill Ships.

† In 1864, these Stations, formerly united, were made separate Commands.

d in the whole Navy, in the Year 1864, as compared with the Abstract for the Year 1863 (" Officers " excluded).

Death.	PUNISHMENTS.													Average per 1,000 Men and Boys, per Year.					Number and Per-centage of Men and Boys in Second Class for Conduct.		(a) Including Boys.		Total Number of Desertions.	Distinguishing No.
	Penal Servitude.		Discharged with Disgrace.	Corporal.		Imprisonment.		Confined in Cells on Board.	Disrated.	Deprived of Good Conduct Badges.	Reduced to Second Class for Conduct.	Discharged as objectionable.	Minor.	Flogged (Men and Boys).	Lashes inflicted.	Imprisoned.	Days' Imprisonment.	Discharged with Disgrace.			Number of Boys.	Lashes.		
	Number.	Years.		Number. (a)	Lashes. (a)	Number.	Days.																	
–	–	–	26	144	3,643	577	27,603	445	126	351	755	211	21,955	10·69	270·47	42·84	4049·37	1·93	–	6·7	–	–	–	1
–	2	20	9	81	1,979	395	16,876	350	93	290	662	63	19,349	6·31	154·06	30·75	1313·72	0·70	1,397	8·0	70	1,571	476	
–	–	–	5	46	1,610	273	13,638	333	104	190	501	56	13,248	11·55	404·12	68·52	3423·19	1·25	–	17·8	–	–	–	2
–	–	–	8	34	1,138	215	10,109	298	54	122	365	25	10,446	8·97	300·34	56·74	2667·99	2·11	663	17·1	17	520	168	
–	–	–	4	12	456	271	11,216	231	27	87	353	47	7,981	3·00	113·97	67·73	2803·30	1·00	–	9·2	–	–	–	3
–	2	10	–	9	252	246	8,393	211	39	115	302	14	7,640	2·28	63·73	62·22	2122·66	–	379	9·6	7	180	215	
–	–	–	–	–	–	–	–	–	–	2	2	1	64	–	–	–	–	–	–	–	–	–	–	4
–	–	–	–	–	–	–	–	–	–	1	–	1	41	–	–	–	–	–	2	–	–	–	–	
–	–	–	35	202	5,709	1,121	52,457	1,009	257	630	1,611	315	43,248	9·32	263·31	51·70	2419·38	1·61	–	9·1	–	–	–	5
–	4	30	17	124	3,369	856	35,378	859	186	528	1,329	103	37,476	5·96	161·85	41·12	1699·56	0·82	2,441	9·6	94	2,271	859	
		Deduct Boys		94	2,271																Recovered -		244	
		Men - -		30	1,098																Lost to the Service -		615	
–	3 1	25 Life.	18	151	5,053	220	11,646	513	159	290	716	56	18,071	18·19	608·72	26·50	1402·96	2·17	–	15·7	–	–	–	6
–	–	–	2	119	3,999	271	16,484	528	119	343	628	22	19,744	15·23	511·77	34·68	2109·55	0·26	1,492	16·4	61	1,843	40	
–	2	8	8	112	4,018	147	9,099	194	124	214	492	48	13,376	18·46	662·16	24·23	1499·51	1·32	–	12·8	–	–	–	7
–	12	42	4	114	4,200	157	9,508	261	132	259	508	6	13,912	19·24	708·98	26·50	1605·00	0·68	1,004	13·0	42	1,383	180	
–	–	–	5	69	2,562	210	8,169	139	119	180	379	14	8,640	13·93	517·26	42·40	1649·30	1·01	758	14·2	22	738	87	8
–	–	–	–	33	1,093	56	2,578	19	24	47	118	4	2,635	21·75	720·50	36·91	1699·41	–	260	14·8	11	253	28	9
–	–	–	–	24	715	34	1,066	9	24	60	109	3	2,141	17·84	531·60	25·28	792·57	–	–	12·2	–	–	–	10
–	–	–	3	16	565	38	1,562	13	35	52	87	2	1,603	14·16	500·00	33·63	1328·30	2·66	158	10·4	11	354	10	
–	2	22	3	43	1,638	42	3,116	27	38	72	146	1	2,527	25·22	960·70	24·63	1827·57	1·76	–	12·6	–	–	–	11
–	–	–	1	33	1,146	8	706	16	32	60	126	2	2,491	21·35	741·27	5·17	456·66	0·65	218	13·1	16	522	5	
–	2	8	3	57	2,096	38	8,544	99	83	141	193	1	5,023	18·44	678·10	12·29	2764.15	0·97	–	13·5	–	–	–	12
–	–	–	2	26	996	33	4,574	86	63	127	176	3	3,928	10·82	414·66	13·74	1904·25	0·83	361	12·6	5	204	182	
–	–	–	2	18	665	16	1,080	67	24	74	164	5	2,372	14·62	540·21	13·00	877·34	1·63	–	16·4	–	–	–	13
–	–	–	–	13	492	20	1,495	56	44	60	120	8	2,895	10·38	392·97	15·97	1194·09	–	260	14·2	5	180	79	
–	–	–	2	22	900	84	4,676	4	25	29	67	2	1,878	29·33	1200·00	112·00	6234·67	2·67	–	15·3	–	–	–	14
–	–	–	1	30	1,197	64	4,425	3	20	47	120	2	2,511	26·02	1038·16	55·51	3837·81	0·87	193	16·3	12	504	113	
–	9 1	63 Life.	50	550	19,805	704	47,527	1,091	616	1,071	2,399	130	56,732	19·80	712·90	25·34	1710·77	1·80	–	14·3	–	–	–	15
–	12	42	18	453	16,250	857	49,501	1,121	588	1,175	2,262	63	58,359	16·36	586·83	30·95	1787·62	0·65	4,704	14·2	185	5,981	724	
		Deduct Boys		185	5,981																Recovered -		122	
		Men - -		268	10,269																Lost to the Service -		602	
–	9 1	63 Life.	85	752	25,514	1,825	99,984	2,100	873	1,701	4,010	445	99,980	15·20	515·82	36·90	2021·39	1·72	–	12·0	–	–	–	16
–	10	72	35	577	19,619	1,713	84,879	1,980	774	1,703	3,591	166	95,835	11·90	404·46	35·31	1749·83	0·73	7,145	13·9	279	8,252	1,583	
		Deduct Boys		279	8,252																Recovered -		366	
		Men - -		298	11,367																Lost to the Service -		1,217	

REPORT

ON

CRIME AND PUNISHMENT

IN THE

ROYAL MARINE FORCES ON SHORE,

In the Year 1864.

TABLES I. and II., showing the Amount of CRIME and PUNISHMENT in the - - - - - - - -

Compiled from Reports furnished by the several

TABLE I.—OFFENCES, &c. - - - - - - - - - - - - - - -

Distinguishing Number.	DIVISION or REGIMENT, and STATION.	Average Number of Men borne for the Year.	In the Second Class for Conduct.		CONVICTIONS.					Proportion of Convictions per 1,000 of the Average Mean Force.			CRIMES AND OFFENCES. - - - -										
													By Courts Martial.						Desertion.			Uncleanness, tending to Immorality.	
			Average Number.	Proportion per 1,000 of Average Force.	By General Courts Martial.	By Garrison Courts Martial.	By Divisional Courts Martial.	Summarily.	TOTAL.	By Courts Martial.	Summarily.	By Both.	Mutiny.	Murder.	Unnatural Crime.	Manslaughter.	Sleeping on Post.	Leaving Post.	S.	C. M.	Proportion per 1,000.	S.	C. M.
1	Royal Marine Artillery, Fort Cumberland, near Portsmouth - -	1,403	69	49·18	-	14	12 9	2,114 C. P.	2,149	24·99	1506·77	1531·72	–	–	–	–	–	–	–	4	2·85	1	1
2	First Division R. M. L. I., Chatham	1,689	148	87·63	1	53	257	3,820	4,131	184·13	2261·69	2445·83	–	–	–	–	1	3	–	29	17·17	–	–
3	Second Division R. M. L. I., Forton, near Gosport - - - -	1,669	104	62·31	-	61	79	5,179	5,319	83·88	3103·06	3186·94	–	–	–	–	1	4	–	18	10·78	4	1
4	Third Division R. M. L. I., Stonehouse, Plymouth - - -	1,776	149	83·90	-	18	56	2,596	2,670	41·67	1461·71	1503·38	–	–	–	–	–	–	–	12	6·76	2	–
5	Fourth Division R. M. L. I., Woolwich - - - - -	2,029	196	96·60	1	73	175	3,217	3,466	122·72	1585·51	1708·23	–	–	–	–	–	–	–	29	14·29	–	1
6	The Whole of the Royal Marine Force on Shore - - - -	8,566	666	77·75	2	219	588	16,926	17,735	94·44	1975·95	2070·39	–	–	–	–	2	7	–	92	10·74	7	3
					809																	10	

TABLE II.—PUNISHMENTS. - - - - - - - - - - -

Distinguishing Number.	DIVISION, or REGIMENT, and STATION.	Whether Summarily or by Court Martial.	Death.	Penal Servitude.		D. with Disgrace.	Branded with the letters B. C.	D. as Objectionable.	Corporally Punished.		Imprisoned.	
				Number.	Years.				Number.	Lashes.	Number.	Days.
1	Royal Marine Artillery, Fort Cumberland, near Portsmouth - - - - -	Sum - -	-	-	-	2	-	2	-	-	-	-
		C. M. - -	-	-	-	-	-	-	2	100	25	1,779
		Civil Power -	-	-	-	-	-	-	-	-	9	1,368
2	First Division, R. M. L. I., Chatham -	Sum - -	-	-	-	26	-	2	-	-	-	-
		C. M. - -	-	-	-	-	-	-	1	50	283	12,307
3	Second Division, R. M. L. I., Forton, near Gosport - - - - - -	Sum - -	-	-	-	23	-	9	-	-	89	5,223
		C. M. - -	-	-	-	-	-	-	10	500	140	8,009
4	Third Division, R. M. L. I., Stonehouse, Plymouth - - - - - - -	Sum - -	-	-	-	-	-	-	-	-	18	558
		C. M. - -	-	-	-	-	-	-	-	-	74	3,188
5	Fourth Division, R. M. L. I., Woolwich -	Sum - -	-	-	-	23	-	-	-	-	17	101
		C. M. - -	-	1	5	-	-	-	5	222	192	11,921
		Civil Power -	-	-	-	-	-	-	-	-	27	3,194
		TOTALS - - -	-	1	5	74	-	13	18	872	874	47,648

- - - - - - ROYAL MARINE FORCES on SHORE, between the 1st of January and 31st of December 1864.

onels-Commandant, under the Direction of the Admiralty.

- - - - - - - - - - - - - TABLE I.—OFFENCES, &c.

- - - - - - - - - - - - - - - - - - - CRIMES AND OFFENCES.

Insubordination and Disrespect.		Theft.			Drunkenness on Duty.			Drunkenness off Duty.			TOTAL of Drunkenness.		Selling or Making away with Necessaries.			Breaking out of Barracks.			Other Improper Absences.			Of the Total of Improper Absences:	Minor Offences.			TOTAL Number of Crimes and Offences.	Distinguishing Number.
C. M.	Proportion per 1,000.	S.	C. M.	Proportion per 1,000.	S.	C. M.	Proportion per 1,000.	S.	C. M.	Proportion per 1,000.	Number of Cases.	Proportion per 1,000.	S.	C. M.	Proportion per 1,000.	S.	C. M.	Proportion per 1,000.	S.	C. M.	Proportion per 1,000.	Proportion per 1,000.	S.	C. M.	Proportion per 1,000.		
11	32·07	2	8	7·13	32	1	23·52	198	5	144·69	236	168·21	4	4	5·70	19	5	17·11	1,748	7	1250·89	1268·00	568	1	405·56	2,653	1
19	37·30	–	6	3·55	26	9	20·72	346	76	249·85	457	270·57	55	158	126·11	37	42	46·77	2,686	142	1674·36	1721·14	1,879	117	1181·75	5,675	2
19	57·52	36	10	27·56	54	4	34·75	158	16	104·25	232	139·01	7	72	47·33	44	41	50·93	2,933	23	1771·12	1822·05	1,864	–	1116·84	5,386	3
3	101·35	23	3	14·64	48	1	27·59	371	5	211·71	425	239·30	38	44	46·17	35	10	25·34	1,900	30	1086·71	1112·05	352	15	206·64	3,069	4
63	88·22	22	2	11·83	13	–	6·41	263	45	151·80	321	158·21	62	152	105·47	22	15	18·24	3,137	145	1617·55	1635·78	464	44	250·37	4,595	5
115	65·72	83	29	13·75	173	15	21·95	1,336	147	173·13	1,671	195·07	166	430	69·58	157	113	31·52	12,404	347	1488·56	1520·08	5,127	177	619·19	21,378	6
63		112			188			1,483					596			270			12,751 270				5,304				
																TOTAL Absences - - -			13,021								

- - - - - - - - TABLE II.—PUNISHMENTS.

Cells.	Reduced to the Ranks.	Deprived of Good Conduct Marks.	Reduced to the Second Class for Conduct.	Minor Punishments.	Proportion per 1,000 of the Average Mean Force borne.									Distinguishing Number.
					D. with Disgrace.	D. as Objectionable.	Corporally Punished.	Imprisoned.	Confined in Barrack Cells.	Reduced to the Ranks.	Deprived of Good Conduct Marks.	Reduced to the Second Class for Conduct.	Awarded Minor Punishments.	
76 -	8 - -	38 - -	7 - -	2,034 - -	1·43	1·43	1·43	24·23	54·17	6·41	27·09	4·99	1449·75	1
227 12	12 3	82 4	- - 67	4,015 206	15·39	1·18	0·59	167·56	141·50	8·88	50·92	39·67	2499·11	2
281 -	20 6	177 31	31 73	1,864 - -	13·78	5·39	5·99	137·21	168·36	15·58	124·63	62·31	1116·84	3
315 -	5 - -	21 - -	20 - -	2,550 49	- -	- -	- -	51·80	177·36	2·82	11·82	11·26	1463·40	4
283 54 -	18 3 - -	87 7 - -	- - 93 - -	2,653 - - - -	11·34	- -	2·46	116·31	166·09	10·35	46·33	45·84	1307·54	5
248	76	447	291	13,371	8·64	1·52	2·10	102·03	145·69	8·87	52·18	33·97	1360·94	

AN ABSTRACT of the foregoing TABLES, showing the several Divisions in their Order of Merit under the different Heads specified.

Average Mean Force (exclusive of Commissioned Officers) borne on Shore for the whole Year, 8,566.

CONVICTED BY COURTS MARTIAL:

(94·44 per 1,000 of the average mean force.)

1. Artillery	24·99	Below the average.
2. Plymouth	41·67	
3. Portsmouth	83·88	
4. Woolwich	122·72	Above the average.
5. Chatham	184·13	

SUMMARY CONVICTIONS:

(1975·95 per 1,000 of the average mean force.)

1. Plymouth	1461·71	Below the average.
2. Artillery	1506·77	
3. Woolwich	1585·51	
4. Chatham	2261·69	Above the average.
5. Portsmouth	3103·06	

TOTAL CONVICTIONS:

(2070·39 per 1,000 of the average mean force.)

1. Plymouth	1503·38	Below the average.
2. Artillery	1531·72	
3. Woolwich	1708·23	
4. Chatham	2445·83	Above the average.
5. Portsmouth	3186·94	

IN THE SECOND CLASS FOR CONDUCT:

(77·75 per 1,000 of the average mean force.)

1. Artillery	49·18	Below the average.
2. Portsmouth	62·31	
3. Plymouth	83·90	Above the average.
4. Chatham	87·63	
5. Woolwich	96·60	

DESERTIONS:

(10·74 per 1,000 of the average mean force.)

1. Artillery	2·85	Below the average.
2. Plymouth	6·76	
3. Portsmouth	10·78	Above the average.
4. Woolwich	14·29	
5. Chatham	17·17	

INSUBORDINATION:

(65·72 per 1,000 of the average mean force.)

1. Artillery	32·07	Below the average.
2. Chatham	37·30	
3. Portsmouth	57·52	
4. Woolwich	88·22	Above the average.
5. Plymouth	101·35	

THEFT:

(13·75 per 1,000 of the average mean force.)

1. Chatham	3·55	Below the average.
2. Artillery	7·13	
3. Woolwich	11·83	
4. Plymouth	14·64	Above the average.
5. Portsmouth	27·56	

DRUNKENNESS ON DUTY:

(21·95 per 1,000 of the average mean force.)

1. Woolwich	6·41	Below the average.
2. Chatham	20·72	
3. Artillery	23·52	Above the average.
4. Plymouth	27·59	
5. Portsmouth	34·75	

DRUNKENNESS OFF DUTY:

(173·13 per 1,000 of the average mean force.)

1. Portsmouth	104·25	Below the averag
2. Artillery	144·69	
3. Woolwich	151·80	
4. Plymouth	211·71	Above the averag
5. Chatham	249·85	

TOTAL OF DRUNKENNESS:

(195·07 per 1,000 of the average mean force.)

1. Portsmouth	139·01	Below the average.
2. Woolwich	158·21	
3. Artillery	168·21	
4. Plymouth	239·30	Above the average
5. Chatham	270·57	

Selling, or making away with, Necessaries:

(69·58 per 1,000 of the average mean force.)

1. Artillery	5·70	Below the average.
2. Plymouth	46·17	
3. Portsmouth	47·33	
4. Woolwich	105·47	Above the average.
5. Chatham	126·11	

Breaking out of Barracks:

(31·52 per 1,000 of the average mean force.)

1. Artillery	17·11	Below the average.
2. Woolwich	18·24	
3. Plymouth	25·34	
4. Chatham	46·77	Above the average.
5. Portsmouth	50·93	

Other Improper Absences:

(1488·56 per 1,000 of the average mean force.)

1. Plymouth	1086·71	Below the average.
2. Artillery	1250·89	
3. Woolwich	1617·55	Above the average.
4. Chatham	1674·36	
5. Portsmouth	1771·12	

Total of Improper Absences:

(1520·08 per 1,000 of the average mean force.)

1. Plymouth	1112·05	Below the average.
2. Artillery	1268·00	
3. Woolwich	1635·78	Above the average.
4. Chatham	1721·14	
5. Portsmouth	1822·05	

Minor Offences:

(619·19 per 1,000 of the average mean force.)

1. Plymouth	206·64	Below the average.
2. Woolwich	250·37	
3. Artillery	405·56	
4. Portsmouth	1116·84	Above the average.
5. Chatham	1181·76	

PUNISHMENTS.

One man of the Woolwich Division sentenced to penal servitude for five years.

Discharged with Disgrace:

(8·64 per 1,000 of the average mean force.)

1. Plymouth	0·0	Below the average.
2. Artillery	1·43	
3. Woolwich	11·34	Above the average.
4. Portsmouth	13·78	
5. Chatham	15·39	

Discharged as Objectionable:

(1·52 per 1,000 of the average mean force.)

1. Plymouth	0·0	Below the average.
2. Woolwich		
3. Chatham	1·18	
4. Artillery	1·43	
5. Portsmouth	5·39	Above the average.

Corporally Punished:

(2·10 per 1,000 of the average mean force.)

1. Plymouth	0·0	Below the average.
2. Chatham	0·59	
3. Artillery	1·43	
4. Woolwich	2·46	Above the average.
5. Portsmouth	5·99	

Imprisoned:

(102·03 per 1,000 of the average mean force.)

1. Artillery	24·23	Below the average.
2. Plymouth	51·80	
3. Woolwich	116·31	Above the average.
4. Portsmouth	137·21	
5. Chatham	167·56	

Confined in Barrack Cells:

(145·69 per 1,000 of the average mean force.)

1. Artillery	54·17	Below the average.
2. Chatham	141·50	
3. Woolwich	166·09	Above the average.
4. Portsmouth	168·36	
5. Plymouth	177·36	

Reduced to the Ranks:

(8·87 per 1,000 of the average mean force.)

1. Plymouth	2·82	Below the average.
2. Artillery	6·41	
3. Chatham	8·88	Above the average.
4. Woolwich	10·35	
5. Portsmouth	15·58	

Deprived of Good Conduct Marks:

(52·18 per 1,000 of the average mean force.)

1. Plymouth	11·82	Below the average.
2. Artillery	27·09	
3. Woolwich	46·33	
4. Chatham	50·92	
5. Portsmouth	124·63	Above the average.

Reduced to the Second Class for Conduct:

(33·97 per 1,000 of the average mean force.)

1. Artillery	4·99	Below the average.
2. Plymouth	11·26	
3. Chatham	39·67	Above the average.
4. Woolwich	45·84	
5. Portsmouth	62·31	

Minor Punishments:

(1560·94 per 1,000 of the average mean force.)

1. Portsmouth	1116·84	Below the average.
2. Woolwich	1307·54	
3. Artillery	1449·75	
4. Plymouth	1463·40	
5. Chatham	2499·11	Above the average.

The Desertions entered in Table I., represent the Deserters who were apprehended, or who voluntarily returned, and were punished for their offence.

The Total number of Men who Deserted after being attested, in the Year 1864, was as follows:—

Artillery Division	19
Chatham	88
Portsmouth	36
Plymouth	31
Woolwich	112
	286
Recovered	92
Lost to the Service	194

W. Hickman.

NAVY (MASTERS).

RETURN to an Order of the Honourable The House of Commons,
dated 8 March 1866;—*for*,

COPY "of the Report of the Admiralty Committee on the Position of Masters of the Royal Navy, and of any separate Report or Memorandum by any Member of the said Committee."

Admiralty,
9 March 1866.

JOHN HENRY BRIGGS,
Chief Clerk.

(*Mr. Corry.*)

FOR PALL MAL

Ordered, by The House of Commons, *to be Printed,*
12 *March* 1866.

ADMIRALTY INSTRUCTIONS to the COMMITTEE appointed to inquire into Subjects relating to the RANK and POSITION of the MASTERS of the ROYAL NAVY.

Sir, Admiralty, 31 January 1862.

MY Lords Commissioners of the Admiralty having had under their consideration the fact that considerable discontent exists among the masters of the Royal Navy, caused by the feeling that they do not hold the relative rank and position with other officers to which their important duties entitle them, I am commanded by my Lords to acquaint you that they are pleased to direct that a Committee shall be nominated to consider and report upon the following questions:

1. Would it be beneficial to Her Majesty's Naval Service in general that the classes of masters, second masters, and masters' assistants should be done away with as a separate branch of the service?

2. If this should be thought desirable, to whom should the special duties now performed by the masters be entrusted?

3. In what manner should the change be made, having special regard to the claims of the many old and valuable officers on the masters' list?

4. Should it be considered unadvisable to abolish the class of masters, what measures should be adopted for removing the discontent now stated to exist among them?

I am commanded by my Lords to request that you will act as chairman of this Committee, whose other members will be—

Captain John Washington, Admiralty;
Captain Geo. Goldsmith, C.B.;
Captain Chas. H. May;
Commander G. T. A. Noddall, Royal Clarence Yard, Gosport;
With Mr. Frederick Cleeve, C.B., Greenwich Hospital, as Secretary.

And their Lordships desire that you will communicate with these officers with a view to an early meeting of the Committee at this office.

I am, Sir,
Your most obedient servant,
(signed) *W. G. Romaine.*

Rear-Admiral
The Hon. Chas. G. J. B. Elliot, C.B.,
Minto, Hawick, N.B.

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REPORT

OF A

COMMITTEE appointed to Inquire into Subjects relating to the RANK and POSITION of the MASTERS of the ROYAL NAVY.

My Lord, Admiralty, 25 March 1862.

1. THE Lords Commissioners of the Admiralty having informed us in Mr. Romaine's letter of the 31st January 1862, W " that considerable discontent exists among the Masters of the Royal Navy, caused by the feeling that they do not hold the relative rank and position with other officers, to which their important duties entitle them ;" and their Lordships having nominated us as a Committee to consider and report upon the following questions—

Subjects referred to the consideration of the Committee.

1st. " Would it be beneficial to Her Majesty's Naval Service in general that the classes of masters, second masters, and masters' assistants should be done away with as a separate branch of the service ?"

2d. " If this should be thought desirable, to whom should the special duties now performed by the masters be entrusted ?"

3d. " In what manner should the change be made, having special regard to the claims of the many old and valuable officers on the Master's List ? "

4th. " Should it be considered unadvisable to abolish the class of masters, what measures should be adopted to remove the discontent now stated to exist among them ? "

Evidence, verbal and written.

2. We have examined 7 flag officers, 10 captains, 3 lieutenants, 10 masters, and the Chairman of the Examining Committee of the Trinity House, and have had the advantage of perusing the various Orders in Council, memorial, statements, and other documents in the Record Office of the Admiralty, relating to masters in the Royal Navy, together with the valuable and mature opinions thereon expressed by officers of great experience and high rank; and having given the whole our best consideration, we have to report the result of our deliberations for their Lordships' information.

Abolition of masters advocated by some officers.

3. Commencing with Question 1. " Would it be beneficial to Her Majesty's Naval Service in general that the classes of masters, second masters, and masters' assistants should be done away with as a separate branch of the service ? "—We would remark that an opinion prevails that the system of entrusting the navigation and pilotage of Her Majesty's ships to a separate class is apt, in some degree, to engender indifference or inattention to those particular duties in the lieutenants and other officers of the main executive branch; therefore, although the result of the present system is, that we obtain in the masters a class of officers who efficiently perform their important duties, and that Her Majesty's ships are, in general, well and safely navigated, the abolition of the masters, as a separate class, is strongly advocated by officers whose opinions are entitled to the highest respect and consideration. The usual argument in favour of the change is, that by throwing the work and responsibility of navigating and piloting ships on the lieutenants and other officers of that branch of the service, a more general acquaintance with these special duties would be imparted to those who may subsequently be called upon to command Her Majesty's ships, and that captains would become more apt and practised in those duties than they are at present.

rguments for and gainst the change.

4. There is much to be said in favour of adopting such a system. The sub-lieutenants and lieutenants are well grounded in theoretical knowledge connected with navigation and nautical astronomy, and hitherto there has been no satisfactory system of training young officers of the master class for the duties they have afterwards to perform. Still, notwithstanding this disadvantage in the early part of their career, from the time the young officer joins a small vessel as second master in charge or as master, his attention is mainly devoted to one particular line of duty,—that of navigation and pilotage; and constant employment in the performance of those duties, gives that knowledge and experience which it is so essential he should possess, and which can only be gained by practice.

rguments continued.

5. No doubt lieutenants might be trained to be equally expert navigators and pilots, if kept constantly employed, as masters now are, in those special duties; but unless they were kept so employed (to the partial neglect of their duties as executive officers in attending to the discipline, drill, and handling of bodies of men) they could not be expected to become so apt in that branch of a seaman's duty as the masters. Practice and habit give a kind of intuitive knowledge not to be otherwise attained; and however attentive the officer charged, under the captain, with the navigation of the ship might be, and however good a theoretical navigator he might be, unless he also had continued practice he would labour under a disadvantage, in essential points, when compared with the present masters.

bjections to the resent system, not nefficiency of the asters.

6. Objections to the present system arise from a feeling that the position of the masters is somewhat anomalous, and it is urged that the service would be conducted more harmoniously if the classes were merged into one. The change is not advocated because any complaint exists of the duty being ill done; on the contrary, it appears that the present system has acted well, and no evidence could be stronger, regarding the value and efficiency of the masters generally, than that which the present inquiry has elicited.

easons why masters hould not be olished.

7. Under these circumstances, and being of opinion that it would be undesirable to throw more of the navigation and pilotage upon the captain than he has at present, and that whatever change may be made he should have as able an assistant, in those duties, as he now has in the master, we feel that to abolish a useful class with the view of improving the other, and to attempt to establish a system which apparently would have some advantages over the present one, but which would in one respect, at least (namely, want of experience in the special duties), have a decided disadvantage, which would be experimental, and which, if unsuccessful, would materially injure Her Majesty's Naval Service, is a step which we cannot at present recommend. For it must be borne in mind that there is, at this moment, a difficulty in recruiting from the main executive line to fill the ranks of the surveying service, which is a highly responsible and honourable service, and one that offers liberal pecuniary advantages and moderate promotion. We are, therefore, of opinion that the masters should be retained, in their present capacity as navigators and pilots, that their position should be improved, that as far as possible, keeping in view the general good of the service, all just cause of soreness or grievance should be removed, and that regulations should be established calculated to assist in training the masters' assistants and second masters for masters' duty.

resent class of nasters should be etained.

uestions 2 and 3 ancelled.

8. Having recommended that the present class of masters should be retained, we have no remarks to offer on Questions 2 and 3.

9. With reference to Question 4, "Should it be considered unadvisable to abolish the class of masters, what measures should be adopted for removing the discontent now stated to exist among them?"—We would observe that, in consideration of the important duties performed by the masters in the Royal Navy, their Lordships were pleased, in February 1860, to promote 14 masters' attendant, assistant masters' attendant, and Queen's harbour masters to the rank and title of commander. These, with the additional pay lately granted to masters' attendant, are substantial boons to the class. But in May 1861, additional relative rank was conferred on the senior officers of the civil branches of the Navy, which had the effect of giving superior position to officers, of whom masters previously took precedence. This is felt as a serious grievance by the masters, especially

auses of dissatisfac-ion among the nasters.

especially with reference to the widows' pensions, &c.; they are also dissatisfied with their designation of "master." We therefore purpose, under the following heads, to submit certain measures, which we trust may be the means of removing all just cause for discontent; premising, that where increased rank is proposed, we take for granted that it will carry with it increased widows' pensions, compassionate allowances, prize money, &c.; and that, except in cases where we recommend increased pay, half-pay, allowances, retirements, or other changes, we intend that the present regulations should remain in full force.

Masters' Assistants.

Proposed designation and rank.

10. Masters' assistants to be styled staff assistants, and those of 17 years of age and two years at sea, to rank with midshipmen in the navy and ensigns in the army, as at present.

Second Masters.

Proposed designation and rank.

11. Second masters to be styled staff sub-lieutenants, and to rank with sub-lieutenants in the navy and lieutenants in the army, as at present.

Masters.

Ditto under eight years' seniority.

12. Masters under eight years' seniority to be styled staff lieutenants, and to rank with lieutenants in the navy and captains in the army, as at present. (*See* Art. 2, page 27, and Art. 1, page 43, of Queen's Regulations).

Above eight years' seniority.

13. Masters above eight years' seniority to be styled staff lieutenants, and to rank with lieutenants in the navy and majors in the army, as at present. (*See* Art. 2, page 27, and Art. 1, page 43, of Queen's Regulations).

Staff commanders by seniority and service.

14. Masters above 15 years' seniority and 20 years' service, on full pay as commissioned or acting commissioned officers, ten of which in the rank of confirmed master or staff lieutenant, if passed for line-of-battle ships, to be promoted to the rank of staff commander.

Staff commander by selection.

15. In order that the services of the most efficient officers may be made available for large ships, &c., we consider it extremely desirable that their Lordships should have the power of promoting staff lieutenants, who have passed for line-of-battle ships, to the rank of staff commander by selection, after 10 years' service as commissioned or acting commissioned officers.

Staff commanders' rank, and authority. Ditto in separate commands.

16. Staff commanders to rank with commanders in the navy and lieutenant-colonels in the army, but junior of those ranks, to be subject (under an extension of Article 2, chapter 4, page 27, of the Queen's Regulations), to the authority of lieutenants, except when in separate commands, when they are to take rank and authority above all lieutenants.

Staff lieutenants' rank and authority, in separate commands.

17. Staff lieutenants in separate commands to take rank and authority with lieutenants, according to the dates of their respective commissions.

Staff commanders' pay and half-pay.

18. When staff lieutenants are promoted to the rank of staff commander, either by seniority and service, or by selection, we submit that they should be advanced to the pay and half-pay now laid down for masters above 20 years' service, and that they should be allowed to advance to the maximum of each of those rates at the end of five years' further service.

Staff commanders' and staff lieutenants' command allowance.

19. Staff commanders, when in command of any ship or vessel, to be allowed the same rate of command money as a commander, namely 2 *s.* 6 *d.* a day, and staff lieutenants at the same rate as lieutenants, namely, 2 *s.* a day, as at present.

Allowance in flag-ships.

20. The same allowances as at present to be continued to staff commanders or staff lieutenants serving in flag ships not at the home ports.

Staff commander not eligible for coast guard. Staff lieutenants in coast guard to count one year in three for rank and half-pay.

21. As staff commanders will have the prospect of succeeding to dockyard appointments, it is not our intention to recommend that they should be considered eligible for appointments as inspecting commanders of the coast guard;

but we submit that staff lieutenants, when permitted to serve in the coast guard, should be allowed to count such service in the same proportion as is now granted to lieutenants, namely, one year in three, in order to their becoming entitled to increased rank and half-pay for such service on retiring from it.

Retirement.

22. With reference to the present system of retirement of the senior masters, under the Order in Council of 28th February 1855, which limits the ages to 60 years for retirement with rank of captain, and 55 with rank of commander, with active service of 20 and 15 years respectively, we are of opinion that staff commanders and staff lieutenants of the above service, who may become physically incapable of further active employment, should be eligible for retirement, at the discretion of the Admiralty, irrespective of the ages so fixed, and with the ranks as above specified.

Master of the Fleet.

Rank, pay, and allowance.

23. It is proposed that this title should be retained, and that it should be held by a staff commander with temporary rank above all other staff commanders, and the additional allowance of 6 *s.* a day, now granted, in addition to his pay as a staff commander.

Might be appointed to large squadron.

24. Whenever a squadron is so large as to require the services of a captain of the fleet, we submit that a master of the fleet might also be appointed.

Masters' Attendant and Assistant Masters' Attendant.

Six principal masters' attendant to be made captains.

25. We recommend that these titles should be retained; that the masters attendant at the six principal ports, Deptford, Woolwich, Chatham, Sheerness, Portsmouth, and Devonport, should have the rank and title of captain, and that the other masters' attendant, &c., should continue to hold the rank of commander.

No further limitation on duration of appointments.

26. It is the desire of some masters that masters' attendant and assistant masters' attendant should be compelled to retire at the age of 60 years, or to hold their appointments for only 10 years; but it appears to us desirable that no further limitations should be placed on what are looked upon as the prizes held out to the staff branch, and as the incentive to and reward of long and meritorious service.

Distinguished Service.

Discontent at Order in Council authorising promotion having remained inoperative.

27. Although the late changes in the relative rank of the civil officers has, for the moment, outweighed all other grievances, there has, for some years past, been a deep feeling of discontent among the masters, in consequence of the Order in Council of the 19th May 1846 (authorising the promotion of masters to the rank of commander for distinguished service), having been allowed to remain inoperative, even in such a case as that of the late Mr. R. W. Roberts, Master commanding Her Majesty's steam sloop "Cyclops," when that vessel towed the "Bellerophon" in an attack of four hours' duration on the sea defences of Sebastopol on the 17th October 1854; and performed on that day services identical with those for which, we are informed, commanders were made Captains and Companions of the Bath.

Recommend promotion under Order in Council.

28. We recommend that, in future, advantage may be taken of the above-mentioned Order in Council to promote staff officers for distinguished service, and that they may be awarded a fair share of the decorations for which they will be eligible by the increased rank hereinbefore proposed.

Deficient practical knowledge of pilotage of channel.

29. The Chairman of the Examining Committee at the Trinity House has informed us, that the masters complain of a want of practical knowledge of the pilotage of the Channel, and that in the absence of that practical knowledge, they can only acquire information from charts and books. He suggests that there should be vessels at Portsmouth and Plymouth, in which every officer should have three months' training before he goes up for examination, taking notes of every leading mark in and out of all the ports, so as to be able to pilot a ship with confidence.

30. A

Vessel for practical instruction in pilotage.

30. A thorough knowledge of the pilotage of the Channel and of the coasts of the British Isles is at all times desirable, and in the event of a war might be of vital importance to the country. We therefore recommend that at least one vessel should be appropriated for this service, and that before staff lieutenants are confirmed in that rank, they should serve, not less than three months, in that or some other vessel in the Channel and around the coasts of the United Kingdom.

Defective training of young officers.

Their employment in charge of decks and holds.

31. It has been prominently brought under our notice, that notwithstanding the judicious regulations laid down in Article 22, chapter 46, page 364, of the Admiralty Instructions relating to the training of masters' assistants and second masters, it has been an almost general custom in the service to employ these officers as mates of decks, and in the orlops and holds; to such an extent indeed, as to call forth a remark from an officer of experience, that "it has often appeared to him extraordinary how masters, on reaching that rank, could have acquired the necessary knowledge of their duties."

Warrant or petty officers to have charge of decks and holds.

32. Considering the enormously increasing value of Her Majesty's ships, and the punishment and loss of reputation that generally fall upon a master, when the ship to which he belongs is stranded, and being of opinion that the neglect of the Admiralty Instruction, above referred to, has been the cause of inefficiency in some masters, we recommend that additional warrant, or petty officers, should be appointed to ships to look after the decks and holds, and that the staff sub-lieutenants and staff assistants should be employed, as much as possible, in the manner contemplated by their Lordships.

Training vessel for staff assistants.

33. We suggest that the staff assistants should receive a year's training and instruction similar to that which is considered necessary for naval cadets, in a vessel specially devoted to the purpose, which should be kept at sea as much as practicable.

Staff lieutenant, additional qualifications on passing for that rank.

34. When a candidate presents himself for examination in seamanship, for the rank of staff lieutenant, according to the present Regulations, we recommend that he should also be examined as to his knowledge on the following subjects:—

On making passages in general and on pilotage according to the stations on which he has served.

The use of charts, the taking of departure, the fixing a ship's position by angles to the shore and by the heights of mountains; and the use of a station pointer.

On the variation of the compass, on local deviation, and its change according to change of latitude and longitude both in wood and iron ships.

On the general currents of the ocean, and the special currents of the stations on which he has served.

On tides generally, and on the turn of tide streams around the British Isles with reference to the times of high and low water by the shore.

On trade winds, monsoons, hurricanes, and typhoons; the general laws by which the latter are governed, and the mode by which they may be avoided in both hemispheres.

Staff assistants' nominations to be given to sons of officers, &c.

35. As it appears by documents in the Admiralty that ninety second masters and masters' assistants were dismissed the service during the last ten years, and as the evidence before us would tend to prove that many undesirable candidates (as regards social position, at least), have been allowed to enter as masters' assistants, we suggest that the staff class would become greatly improved if the appointments of staff assistants were, as far as expedient, to be given to the sons of officers, and other gentlemen, who would be likely to maintain a position of respectability in the Service.

Second masters, deficient numbers not caused by resignations.

36. An opinion prevails that the small number of second masters now on the Navy List may be accounted for by the supposition that many young officers leave the Service (after a few years' training) to improve their position. There is no doubt that a few do so; but on examining the returns in the Admiralty we find that the present deficiency chiefly arises from the usual casualties of the Service, and from the fact that only the following small numbers of second

masters and masters' assistants were admitted into the Navy during the years expressed against each, viz.,—

18 in 1852	73 in 1855
29 in 1853	34 in 1856
55 in 1854	15 in 1857

Experiment might be tried for abolishing separate class for navigating duties.

Ten lieutenants might be allowed to volunteer.

37. Having pointed out the manner in which we consider the position of the masters, &c., should be ameliorated, we beg to revert to our remark in a previous paragraph, "that the abolition of the masters, as a separate class, is strongly advocated by officers whose opinions are entitled to the highest respect and consideration." We think that the experiment, on a small scale, might be tried, and we therefore suggest that ten young lieutenants might be allowed to volunteer for staff duties, and that, after passing special examinations in navigation and pilotage, they should be appointed in the first place to sloops, and subsequently to frigates, as lieutenants in charge (under the captain) of the navigating duties; that a slight addition should be made to their pay, which should increase by service as navigating officers; that promotion should be granted in full proportion to that awarded to other lieutenants; and that in addition, one special promotion, yearly, should be awarded to a lieutenant who has served efficiently and continuously in the capacity of navigating officer at least eight years, and has passed for line-of-battle ships. Also, that commanders (who might be in charge of navigating duties in line-of-battle ships) should have a full share of promotion to the rank of captain.

Selected officers to attend to drills, &c.

To be relieved of certain other duties.

38. We suggest that while these selected officers are employed in navigating duties, they should not, as a rule, whatever their rank and seniority as compared with others on board might be, assume the ordinary executive duties; but that when the ship is in harbour or out of pilot waters, and when other circumstances admit of it, they might be called upon to attend to the drills and other routine duties, so that they might not deteriorate in efficiency as officers of the regular executive line of the service. With this view we recommend that the commander or senior lieutenant should superintend the expenditure of warrant officers' stores and the fitting of the rigging, and that in a ship where a gunnery lieutenant is borne, he should relieve the commander or senior lieutenant of the superintendence of the expenditure of gunners' stores.

Navigating duties not to be a bar to promotion.

39. It should be clearly made known that the adoption of the navigating duties would not be a bar to promotion for service or through the usual channels.

Three previous paragraphs merely an outline of plan.

40. The above is an outline, for an experiment, which would enable the Lords Commissioners of the Admiralty to judge whether it would eventually be for the good of the service to abolish the separate class and to merge their duties in the executive branch. If it should prove successful, it would only be necessary to stop the entry of staff assistants, and gradually to increase the number of sub-lieutenants and lieutenants, qualified for navigating duties as the staff officers become extinct.

Conclusion.

41. In conclusion, we venture to express a hope that the measures we have recommended may prove beneficial to her Majesty's Naval Service and just to a highly valuable class of officers.

We have, &c.
(signed) *Chas. J. B. Elliot*, Rear Admiral.
John Washington, Captain.
Geo. Goldsmith, Captain.
Chas. H. May, Captain.
C. T. A. Noddall, Commander.

To the Right Honourable
Lord Clarence Edw. Paget, C.B., M.P.,
Secretary of the Admiralty.

MINUTES OF EVIDENCE

TAKEN BEFORE

A COMMITTEE appointed to Inquire into the RANK and POSITION of the MASTERS in the ROYAL NAVY.

Wednesday, 12th February 1862.

PRESENT:

Rear Admiral the Honourable Charles J. B. Elliot, C.B.
Captain Washington, F.R.S.
Captain Charles H. May.
Captain George Goldsmith, C.B.
Commander C. T. A. Noddall.

Rear Admiral the Honourable CHARLES G. J. B. ELLIOT, C.B., in the Chair.

FREDERICK JOHN O. EVANS, Esq., R.N., Examined.

F. J. O. Evans, Esq., R. N.

12 Feb. 1862.

1. YOU are a Master in the Navy, are you not?—I am.

2. Will you state to the Committee the length of your service, and where you have chiefly served?—I have been 34 years in the service; I entered it as a volunteer of the second class at the age of 13, in the year 1828, and have served continuously down to the present time, with the exception of six months on half-pay. I am a master of 20 years standing, and of that time have spent 10 years on foreign stations, and the remainder served in England. The whole of the time from my entering the service to the date of my promotion in 1841, was served on foreign stations.

3. Will you state what ships you have served in?—The first ship that I joined was H.M.S. "Rose," on the North American Station. I was three years in her; nearly two years in the "Winchester" flag ship, in the West Indies; three years in the "Thunder," surveying ship; and two years in the "Caledonia," flag ship," as also the "Asia" and "Rapid," in the Mediterranean.

4. Was that before you were made master?—Yes; the first ship that I was acting master in was the "Dido," in the Mediterranean, in the year 1838. I then served two years on the Coast of Africa, as second master in charge of the "Rolla," 10-gun brig, and was then promoted acting into the senior officer's ship on the West Coast of Africa. On my return to England in 1841, I was promoted to master; serving afterwards continuously in the "Fly" and the "Acheron," as master and assistant surveyor on the Coasts of Australia and New Zealand. On my return in 1851 from New Zealand, I served about two years in the surveying service in England, then one year in the Baltic during the first campaign; after that I was appointed to my present position as superintendent of the compasses of the Navy, which I have retained since.

5. All your services as master have been in the surveying service, have they not?—Yes; they have all been in the surveying service. Ten years was in the "Fly," corvette, Captain Blackwood, in Australia and Torres Strait; the "Acheron," steam vessel, Captain Stokes, in New Zealand; and the "Lightning," in the Baltic, under Captain Sulivan.

6. Do you consider that the class of officers to which you belong are satisfied with their position?—I think not generally. I should say that the almost universal feeling among them is that they are not satisfied.

7. What are their chief grounds of complaint?—If the Committee will permit me, I will read a passage from a private circular which was distributed amongst the masters some four years ago, and emanating from themselves, in which the main grounds of complaint are embodied in very few words, but, of course, they branch off from that into detail. I may state that this circular was dated subsequently to the Crimean war and the Baltic campaign. The main grounds were these:—"They consider that the events of the last war have forcibly shown the hardships annexed to their position, and that examples selected therefrom may serve to demonstrate the injustice and inexpediency of the regulations respecting them."—"The objects sought to be attained are prospects of *active* rank, now only extended to *retirement*; a fair share of the honours of the service; and a position corresponding to their duties and responsibilities." This was the text, if I may so call it, which brought the masters generally to consider what they should

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should petition the Admiralty for. The petition took this shape; and if the Committee will allow me, I will read the extracts from it which bear upon the present time, because subsequently to this petition some of the points in it have been acceded to. I think I may say that these points hold good at the present time, in addition to another point which I will also state. We say in our petition, "That your petitioners, who have been serving subsequently to the promulgation of Her Majesty's Order in Council, of May 1846, have viewed with much concern the entire exclusion of their class from the promotion therein set forth as the reward for distinguished conduct, notwithstanding their having been officially mentioned, gazetted, and publicly thanked for services described as 'daring, gallant, and valuable.'" "That your petitioners, both on service and socially, and especially when co-operating with foreign officers, experience considerable embarrassment from the want of relative rank with other executive officers of the same service, and also from their ambiguous title. The medical officers of the Navy are in the enjoyment of certain definite gradations of rank to which they receive substantive promotion for meritorious service, which rank is available whether at sea or in hospitals, or other Government establishments on shore, and renders them eligible for military distinctions conferred by the Sovereign. But your petitioners feel that until they have passed the age of 55 or 60, they can enjoy no accession of rank, relative or direct, and are excluded from the honours attendant upon good service, and that the advancement open to them at that late period of life is inseparable from retirement." A third point has arisen by a recent Order in Council, by which the paymasters and engineers have been placed over our heads, both in rank, and particularly in the pensions to the widows. I consider that these are the main points in which the whole body feel aggrieved. Of course there are a number of individual grievances, which bear hardly upon some, and lightly upon others. Perhaps the chief of the individual grievances which really affect a large number is, that some 20 years ago masters were kept acting in that rank sometimes five or ten years. We were the class to whom the system of giving acting orders was chiefly confined. Some officers have had acting orders for 10 years, all of which time, so far as rank is concerned, is a perfect loss to them. In pay I am very glad to say that they have been benefited within the last two years, and in this respect they consider generally that the Admiralty have dealt very fairly and liberally by them. There is another point connected with what is referred to in this petition as a social grievance, which is deserving of mention. It, perhaps, refers more to individual cases than it does to the general service; but the cases are pretty strongly marked. It is, that masters, when in command of vessels, say that they have not received the same attentions which have been shown to officers of the regular executive line when in command. I may illustrate that by giving one or two examples. In one of the yachts which conveyed a very distinguished personage, the master commanding that vessel was never invited to the messes of the military officers on shore, or to the Governor's table, whilst on the suite of that distinguished person. A second case, which came within my own knowledge, was also that of a master in command under somewhat similar circumstances, who was invited to dinner, but the invitation was not sent to him. An aide-de-camp was afterwards sent, requesting that he would attend in the evening; but of course, under the circumstances, this was declined. Although these cases may appear trivial in themselves, yet the class themselves feel that although they may have a rank which is equivalent to that of a captain or a major in the army, it does not confer the same privileges; and they believe it entirely to arise from the ambiguous nature of their title, which conveys no military meaning or distinction whatever.

8. They consider that their real position is not known?— It is not known out of the service.

9. Could you state shortly the chief remedies which you would suggest for the grievances of which you complain?—I think that that opens up a very wide question; but the remedies for the points which I have mentioned, appear, perhaps, a little more simple. I should very much like to see a proper rank, according to service, conferred upon the masters, and a proper title. In my opinion, that would go far to relieve many of the grievances complained of.

10. Are you of opinion that it would be beneficial to the service that the classes of masters, second masters, and masters' assistants should be done away with as a separate branch?—I think it would be highly beneficial.

11. To whom do you think that the special duties now performed by the masters should be entrusted?—To a lieutenant specially trained for the purpose.

12. You mean, do you not, that he should pass an examination?—Precisely so.

13. How would you ensure to the larger ships the more experienced and practised men that are required for such ships?—I consider that the larger ships of the present day have masters employed in them who are not seniors in point of standing to many of the lieutenants that are employed; and in the case of any officer who has been promoted at an early age, I believe that between the ages of 25 and 35 is the prime of his life for the necessary active work of a master; and that after the latter period, although he may have more experience, he cannot have all the physical energies that are required at the present time; and that consequently a lieutenant of from two or three, to ten years' experience, would be the best man that you could have, provided that his education and his training were devoted to that speciality in the same way as officers devote themselves to gunnery, or to becoming first lieutenants. And I think that he would be the better officer to command the ship when his time of promotion arrived.

14. A good navigation officer, who has done his duty well in a small vessel, would probably be promoted?—Yes.

15. In the case of a larger vessel, which requires more experience, how would you insure the services of the more experienced navigating officer?—I take the service as I find it at present. I see that there are lieutenants up to 7, 10, and 12 years, and I find that that is the general average of the senior lieutenants of the fleet, therefore I cannot conceive that the difficulty alluded to would arise from all the young men being promoted. If all the young lieutenants were promoted at the time suggested by the question,

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question, it would hold good then, but I do not anticipate any difficulty on that score.

16. Have the masters at present in the service had any special training for their vocation?—None that I am aware of.

17. Have they had as much education and training as other officers in the service?—I should say, certainly not.

18. Can you describe to the Committee how a master enters the service, and proceeds upwards until he gains his rank?—There have been so many changes in the last few years, that it is really difficult to tell what the entry is. At the present time it is pretty well defined. Youths of 13, 14, 15, and 16, enter and pass an examination according to their ages.

19. Are those youths selected from any particular school, or from any place in which they have been educated for this purpose?—There are a small portion, but what proportion it bears to the whole I do not know, I suspect it is very small, who are selected from Greenwich Hospital School.

20. But that is not so in the generality of cases?—I think not. By far the larger proportion of them come in from outside; from where, I do not know.

21. Have they to pass the same examination as cadets?—At a certain age, at the younger ages of the masters' assistants, I should say that the examination for entry was equivalent to the examination previous to getting a cadetship. At the older ages of masters' assistants, from 16 to 17, the supposition is that they have been at sea for some short time, and they pass a slight examination in seamanship.

22. Do the masters' assistants pass a slight examination in seamanship?—Yes, they pass a slight examination in seamanship; and that, as I have just stated, is on the supposition that they have been to sea in the merchant service.

23. Is it not the case that the naval cadets are specially educated, that they are sent to the "Britannia," and educated, and that then they have to pass an examination every two years?—Yes; that I am aware of.

24. Do the masters get the same education and the same training?—Nothing like it.

25. Are the duties of lieutenant or of master the more responsible?—With respect to the master in his particular duties, I consider that there is no officer who has such responsible duties in the ship. I look upon the responsibility of the navigation under a variety of circumstances to be paramount, perhaps, to any other duty in the ship.

26. Also, in pilotage waters, is there any other responsibility than the master's, except the general responsibility which rests with the captain?—I am not aware of any.

27. You state, do you not, that the training for this position is very inferior to that of a lieutenant?—At the present time it is very inferior.

28. Do you know of any reason why a lieutenant should not be as competent to navigate a ship as those in the master's class?—Judging by the education which they receive, and the examinations which they undergo, I consider that, so far as the art or science of navigation is concerned, they ought to be far superior to the masters.

29. With respect to their duties on board a ship, where are the master's assistant and the second master generally placed to do their duty in a large ship?—I fear that of late years the custom has prevailed, to a very large extent, of employing them in the holds and cockpits; I think more so than it did in my days as a master's assistant. I gather that from the reports of my various friends in the service.

30. And from that they are placed at once, are they not, in charge of a small ship as master, if they are promoted?—Very frequently; and I believe more so than formerly. Formerly there were a number of small vessels, cutters, and ten-gun brigs, which employed a great number of masters, and which brought up, I may say, the best of the class. That privilege, of course, has passed away; and the case stands now more strongly than ever, that the second masters come direct from the orlops and holds of a line-of-battle ship to take charge of a small vessel.

31. Would there be any difficulty in a lieutenant passing the same examination for pilotage at the Trinity House that a master passes?—I see no reason against it. The majority of masters are very little employed in the Channel, and of course their preparation for the examination that they undergo is chiefly derived from book knowledge, or from the assistance that they may have received from the master of the ship in which they were serving when young; it is not from any experience that they attain, in the literal sense of experience, as pilots; at least, such was my case; and I know that such was so in the case of many others.

32. To use a slang term, do not the masters "cram" for the examinations at the Trinity House, just as the cadets and others "cram" for the examinations in other places?—I may say that the second masters "cram" for the earlier examinations; but when it comes to the final examination of masters for line-of-battle ships, they must then have necessarily acquired in the course of time some experience in the Channel, and they look upon that as one of their very responsible duties. By that time the period of cramming has passed; but prior to that certainly it exists.

33. Does the service afford the second masters or the masters any special opportunity of acquiring a knowledge of the Channel pilotage?—None that I am aware of.

34. In your opinion would it be advisable that such opportunity should be afforded?—I think it would. Like all other points of knowledge, I think it is extremely useful, but I confess that I do not see the very great difficulties of the English Channel so as to make that such a paramount matter of necessity. There are other parts of England to which, in the event of war, we should pay quite as much attention as the English Channel.

35. Is a master required to pass an examination for the North Sea, or the coast of Scotland, or the Irish Sea?—No.

36. Is he expected to conduct his ship there?—Certainly.

37. Is there any reason why a lieutenant should not acquire the same knowledge of pilotage as a master does?—I see no reason.

38. Do you consider that the navigation of a ship and the pilotage being entirely thrown upon one person has any prejudicial effect upon the Navy generally?—I think it has, in more ways than one. I consider it is unfortunate that a duty involving so serious a responsibility should be

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be thrown into the hands of a person who is of an inferior rank. That is a very serious objection.

39. Do you think that it has a tendency to make the other officers indifferent as to the navigation of the ship?—I would not say that it makes them so much indifferent as that it really prevents them acquiring the professional knowledge which may be absolutely necessary for them. At the same time, there are many duties connected with the master beyond the navigation of the ship, which, I consider, so far as my observation goes, that the lieutenants are very deficient in, from never having had an opportunity of becoming acquainted with. I am now speaking more particularly of bringing a ship to an anchor and picking up a berth, and those particular evolutions which are beyond the duties of an officer of the watch; and I may say that a first lieutenant, when left in temporary command of a ship (I have seen it myself), feels a want of confidence on those particular points.

40. Do you know any reason why a captain should not navigate his own ship, if assisted by one of the lieutenants?—None whatever. I think it would be an improvement over the present system.

41. Do you know any instance of a ship being navigated without a master for any period of time?—I know of one or two detached instances. Of course it is an exceptional case, but it has not struck me much on that account. I myself belonged to a vessel, and was detained in England upon a law trial connected with the Government, and that vessel went to New Zealand without me. She had no master at the time.

42. Did she come to any harm?—None whatever.

43. Are there masters or second masters on board the gun-boats generally?—Very few, I believe, of the gun-boats have second masters.

44. Were the gun-boats that were in the Baltic navigated by lieutenants, or by masters, or by second masters?—Chiefly by lieutenants. Very few of them had any other officers than lieutenants on board of them.

45. Were they found efficient?—I have always heard so.

46. Do you consider that if the responsibility of navigating vessels were thrown upon the lieutenants and the captains, it would be an inducement to them to pay greater attention to the subject?—I think it would. I am speaking more particularly of lieutenants. My remarks do not apply to captains, because, so far as my experience has gone, I have always seen the captains take a considerable interest in that particular branch of duty; but with lieutenants, I regret to say, generally speaking, it is the reverse—they are indifferent to it.

47. Are you of opinion that lieutenants should be specially selected for the duties now performed by the masters in the event of the rank of master being done away with?—I am of that opinion.

48. Or would you give it to them generally?—What I should wish to see, would be that the officer who, in his examination, had shown a proficiency in navigation, would be encouraged to devote himself to that particular branch, and that, similarly to an officer who has distinguished himself in the "Excellent," he would naturally be selected, or officially selected, if necessary, the same as the gunnery lieutenant, to perform that duty during his period of service in the ship.

49. By whom do you think that the selection should be made? Should it be made by the Admiralty, or by the captain who commands the ship?—Judging from the way in which the "Excellent" system works in gunnery, I do not see why it should not be applied to navigation.

50. They are officially appointed, are they not?—Yes.

51. You mean that the selection should be made by the Lords of the Admiralty?—I would take the "Excellent" as a guide.

52. If the duties now performed by the masters are taken from them, and imposed upon the lieutenants, are you of opinion that the captains should have the selection of the lieutenants who are serving under them, or that it should be an Admiralty appointment?—I should consider that the Admiralty would have a better knowledge of the officers' qualifications from the records in the office.

53. You think, therefore, that it ought to be an Admiralty appointment?—I think that it would work certainly much better in that way than in the other.

54. Would you change the designation of the officer to whom the navigation and pilotage of a vessel was *pro tempore* entrusted?—By the same system that an officer would be designated as first lieutenant or gunnery lieutenant, so he might be designated the navigating lieutenant, or any other term that was equivalent to it.

55. Should that officer be exempted from the duties which are now usually performed by lieutenants, or should it be in addition to his other duties?—I consider that if he performs the duties properly which I have alluded to, he should be exempted in respect of the general features of a lieutenant's duty.

56. Then you would propose to have an increased number of lieutenants to the ships at present, in order that officers may be appointed to that duty?—Of course, if I am to understand by the question that the master would not be in existence, there would be precisely the same number of officers that exist now.

57. You would add a lieutenant in lieu of the master?—Just so.

58. Should that officer be examined before the Trinity Board, as is now the case with masters?—As I have before stated, I do not attach so great an importance to the passing before the Trinity House which is perhaps attached to it in many quarters. I think that at the present day, with our admirable charts and sailing directions, and the more complete general knowledge of places which exists among all classes, from the opportunities of travelling, men would naturally now become better pilots; and instead of the examination being confined to one particular locality, I should like to see it extended. Therefore, taking the Trinity House examination in itself, I would rather see something more general substituted in lieu, with a view of testing an officer's qualifications. I think that if an officer has served upon a foreign station you can test his qualifications for pilot as to what he would be in the English Channel, though he has never acted so there, and never taken a ship into an English port.

59. How many years should an officer serve as a lieutenant before you would impose upon him the extra duties of navigating and piloting a ship?

—Taking

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—Taking the service as I find it now, a young master is promoted, and he immediately enters upon those duties. If a young sub-lieutenant has received his promotion, and has passed a good examination, I think that he is equally fitted at once to assume those duties in a small vessel, as a young second master or a young master of the present time. A restriction as to age might probably be necessary to be carried into effect, when you come to the larger vessels. I should always anticipate that in any measure of the kind, care would be taken to include a navigating officer for his promotion as much so as for being a good first lieutenant or a good gunnery officer.

60. Would you place any limit to the age and rank of an officer for the largest sized ships?—I consider that an officer to perform the duties which are analogous to a master's duties now, should be in the prime of life. I think that you do not get sufficient physical energy from a man after a certain period; he can no longer remain up all night to do it effectively, or remain up a dozen nights consecutively, as a young man would do; and the nerves begin to shake a little bit also after a certain time. I have held conversations upon that particular point with many of my brother officers, and I have only to look at the Navy List to see what actually takes place; that after a certain age, say forty, certainly a master, whatever he has gained in experience, has lost in nerve, and that he is inclined to adopt perhaps over-cautious measures where the service might be benefited by his being a little more dashing. I may add to that that I consider steam has to a certain extent altered many of the conditions of the service. In the old sailing days it was easy for a master to look out and put the ship's head off shore for three or four hours at night, and get a little rest, so that he could eke out rest for his nerves; but now there is nothing of the kind — there is constant progress with steam.

61. Judging from the opinion which you have lately given, one would be inclined to imagine that the master had the sole responsibility of navigating the ship, instead of sharing it with the captain?—No; I should be very sorry to advance such an opinion as that; but I know this, that the master has no less work than what I have alluded to. I am aware that his responsibility is solely under the captain's, but the work, nevertheless, falls upon him.

62. Of course the captain being equally responsible, his nerves are put to the same test as the master's, who, generally speaking, is a junior man in age to the captain?—Yes; it certainly is so, and I have no doubt that the same argument applies, but the master's place when within sight of land is on deck, and a master who knows his duty and performs it conscientiously never leaves the deck. Of course the captain, with his multifarious duties, must have his rest; so that although the responsibility rests upon the captain, that does not lessen the work of the master.

63. The evidence which you have given has principally been under the idea of the masters' class being done away with, has it not?—Yes; the questions which have been put to me have borne a certain form, and the spirit of my remarks has been to agree with that.

64. Do you not think that the extra pay which the masters have enjoyed from their entering into the service, as compared with the pay of the executive class, should tend to reconcile them to their position?—The extra pay to which you allude is a matter of recent creation, if I may so term it.

65. But it is existing at the present moment, is it not?—Yes; it is existing; but I look upon the increase of pay to be due to more causes than one. I look upon it as just the market value of a man's services; for if he could not live upon the old pay he must go elsewhere and seek it; and I believe that all the increased pay that is given to the masters is pretty nearly due to that; it is really that they could not have lived upon their old pay.

66. To whom would you transfer the charge of the warrant officers' stores if the branch of masters was done away with? — The warrant officers' stores now are in the charge of the warrant officers, but the master has a superintending control over them; they are not really in his charge, it is merely a control. I always have thought it merely a superintending control, and not a charge; this superintending control could be very fairly left to the first lieutenant, as I think that the first lieutenant has more interest in it, and is better able to exercise that superintending control than the master, who only does it in a secondary way. I mean that superintending control which now virtually exists under the captain.

67. By whom would you have those duties performed with regard to the hold of ships which are performed by the second masters at the present moment?—I consider those may be very safely left to an inferior warrant officer, if I may so call him, for the principal thing to do is to see that the holds and tiers are clean and kept in order. I should like to see a warranted officer who would hold a position, perhaps, under the other warrants, but better than the position of the captain of the hold, and he should have the sole charge. This we find is practically coming into use in the service now, for where the mates used to have charge of the decks, it now falls upon a warrant officer.

68. In the event of a lieutenant being employed as the navigating officer, would you hold out to him the reward of extra pay?—The subject of extra pay to him as to a first lieutenant is a fair matter for consideration, and I should be strongly disposed to give it to him. The wear and tear is greater; and the promotion being, as I see it now, very slow, I think that a man who performs a responsible duty fairly earns an addition to his pay, over that of another who does not perform it. That principle is recognised so far as the gunnery officer is concerned, and it is recognised so far as the first lieutenant is concerned, and therefore I should apply the same principle to a man who does extra work in the respect of navigation.

69. The designation which you would apply to the present masters with a view to ameliorating their condition would be that of navigating lieutenants?—I think it is a very good name; but it is not merely the change of name that would ameliorate their condition. I think it is a name that would give them a more distinctive title, and one that would be better understood. It would relieve them of those heart-burnings which I have alluded to; it being a military title rather than an ambiguous one, which may apply

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to the master of a collier or any other inferior vessel.

70. What position would you recommend them to take with regard to the other lieutenants in military command of the ship with that title of navigating lieutenant?—That is to say, if I understand the question aright, if the masters remain as they are——

71. If the present masters remain as they are, and are designated navigating lieutenants, what position would the navigating lieutenant assume in the military command of the ship?—I confess that I see no reason why they should not take their position in the ship with the other lieutenants. Of course, I am taking it for granted that in giving him the title of navigating lieutenant, you will *bonâ fide* make him a lieutenant with the opportunity of rising in the service; but if you confine him to the position in which he is at the present moment, with the name of navigating lieutenant, which is merely a change of title, I presume that that would be letting things remain as they are.

72. Would you transfer the main responsibility, which at present exists in the service, from the master to the captain, and make the navigating officer merely an assistant to the captain?—As the service is constituted at the present moment, I have always considered that the main responsibility rests upon the captain; but we know that, in point of fact, that responsibility is very deeply shared by the master, which at times has appeared to me rather unfair upon the latter officer. It is difficult to define where the responsibility of the one begins, and that of the other ends. Therefore, to revert to the original question, I think that if the responsibility were clearly defined as being left upon the captain's hands, his assistant would be there as his adviser, and the responsibility would not be left, as in the present case, with the master, who often serves merely as a fender.

73. Whom would the country consider responsible for observations and calculations in case of this radical change being carried out?—The captain, I should presume. He is the sole responsible head.

74. Do you consider that the years of half-pay that many captains enjoy at the present moment would conduce to make them responsible and good navigators?—I observe a great change in that respect. The captains of our ships now, so far as I can judge, appear to me all to be young, and to have had a very fair amount of professional experience, and not so much of the half-pay that I presume the question alludes to. I see among the line-of-battle ships at the present moment several commanded by mess-mates and cotemporaries of my own, and therefore I judge that they are well able professionally to take all the responsibilities of their position.

75. Would you specially educate officers to take office in the navigating branch?—I should like to see that very much. I consider it would be preferable even to selecting those who distinguish themselves in navigation in their examinations. If the bent of a young officer lay rather in the acquirement of navigation than say of seamanship (and all youths have their bent, one way or the other), I think it would be well to encourage that young man for the navigating branch.

76. Do you think that you would obtain officers who have an income independent of the service, to follow this line, and trust to that for promotion?—I believe if there was a fair share in the promotion you would have officers competing for it, as eagerly, I presume, as they do for the office of gunnery lieutenant and first lieutenant.

77. To what do you attribute the professional attainments of the present senior class of masters who are now serving?—The senior masters are mainly those who entered young into the service as volunteers of the second class, and were brought up in it; and it must be recollected that they are winnowed from a very great number who were originally entered, and therefore that they are the best of them, professionally speaking. They had, as I observed in a former part of my examination, a great deal of experience in small vessels. They were kept a long time as second masters in that class of vessel, so that they made up by length of time for what, if they had studied and had been well tutored, they would have otherwise gained at a much earlier period of life.

78. Do you consider that the service would be more benefited by the total abolition of the class of masters, or of the navigating class specially assigned for that purpose, or by keeping the present class intact, giving them a new name, with, to the seniors, additional position and rank?—I have considered that question from many points of view, and I cannot help thinking that the service would benefit materially by the entire abolition of the master's class.

79. You have alluded to an Order of Council of 1846; to what did that Order in Council refer?—To the promotion of masters to the rank of commander for distinguished services.

80. Have any masters been promoted direct to commanders under that Order in Council?—None.

81. That order has, therefore, been a dead letter?—Certainly it has.

82. Were any masters promoted for services in the Crimea?—One master was made a lieutenant, but I know of no other.

83. Is he still a lieutenant?—Yes.

84. You state that the pay of masters has been greatly increased lately. Is that lieutenant to whom you refer in a better or a worse position than he would have been in if he had remained in the rank of master?—Looking at it in a monetary point of view, he is of course worse off; but looking at it from the chances of the service, I hope he will be better off in the long run, and that he will make up in the end for what he is certainly losing now.

85. You served throughout the Baltic campaign, did you not?—Through the first year.

86. That was a campaign, was it not, in which navigation was as much brought forward as gunnery?—I think so; and perhaps more so.

87. The French squadron served jointly with the English in those seas, did they not?—They did.

88. Do you know whether there were any masters on board the French ships, or had they such a class as master in the French navy?—No; they had English pilots, I believe.

89. Do you know who is charged with the navigation of the ship in the French navy?—The captain, I believe.

90. Do you happen to know whether he is assisted by a lieutenant, or by whom?—I cannot speak confidently upon that point. My impression is, that he receives assistance, but not of a responsible character.

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91. Do you know whether that is the case in the United States Navy?—They had a class of sailing masters at one time, who were, in fact, their senior passed midshipmen. Those were abolished; but I think I have read lately that they have been resuscitated again, with a view, I suppose, to meet the pressing emergency of the times.

92. Do you know whether in the Russian or Spanish, or any other foreign service, they have a class of masters?—I think not. I know of no service that has a class of officers analogous to our own, or approaching to it.

93. Are not the casualties amongst some of these navies greater than in our own?—I think that in the French Navy, which, perhaps, is the only fair one to compare with ours, the casualties are greater (or, at least, they have been so); but it is difficult to get statistics to guide one upon this point.

94. Are you aware how long a period has elapsed, up to the present time, since we lost a line-of-battle ship?—Not within my period of service, which is 34 years; and I do not recollect any in history since the loss of the "St. George," and the "Defence," in the North Sea, in 1811.

95. Is there anything further which you would wish to state to the Committee?—I believe that I have given the general points which the masters, as a body, regard as the main features of their grievances. I have no individual grievance to bring forward.

96. Supposing the classes not done away with, is there anything which you would suggest with a view to improving their present position, particularly with regard to navigation?—There are several points. I consider, especially, that the juniors should receive an education similar in all respects to that of cadets and midshipmen, and undergo the same or even a more rigorous examination; that is absolutely imperative; and I consider that, as the wear and tear is greater, that officers should be promoted quicker and to a better position than they hold now. Instead of keeping them in a subordinate position, they should be placed in one which they would be proud to hold—a condition which is by no means existing now, especially among the seniors. There should be education for the lower branches, and advancement for the upper. I think these are the main features which require attention, in order to get a class of officers that will be equal to the emergencies of the service.

[The Witness withdrew.

Adjourned to Friday next, at Twelve o'clock.

Friday, 14*th February* 1862.

PRESENT:

Rear Admiral the Honourable C. G. J. B. Elliot, C.B.
Captain Washington, F.R.S.
Captain George Goldsmith, C.B.
Captain Charles Henry May.
Commander C. T. A. Noddall.

Rear Admiral the Honourable C. G. J. B. ELLIOT, C.B., in the Chair.

ROBERT CALDER ALLEN, Esq., R.N.; Examined.

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97. WILL you state what rank you hold in the Royal Navy?—That of master.

98. Will you state shortly the length of your service as second master and master, mentioning the names of the ships, and the stations on which you have served?—I was second master in charge, for a period of five years and upwards, in the "African" and "Volcano" steam packets, carrying mails in the Mediterranean and the West Indies. They were commanded by lieutenants. As master I served in the "Vixen," steam sloop, in China, the East Indies, and Borneo; in the "Dido," on the same station; in the "Terrible" on the Channel Station; in the "Blenheim," on the Channel Station and particular service; in the "Resolute," in the Arctic Expedition, under Captain Horatio Austin; and my next ship was the "Hogue," in the Baltic. I have been since in the "St. Vincent," ordinary guard ship at Portsmouth, and in the "Duke of Wellington;" and I am at present serving in the "Duncan."

99. The Committee are informed that the masters in the Navy are discontented with their position. Will you state what you believe to be the grounds of their discontent?—The great reason for our discontent lately is, that officers have been placed over our heads, of whom we formerly took precedence; I mean surgeons, paymasters, and engineers, who now have relative rank superior to ours; that is our great grievance.

100. Beyond that, have you any serious grievance to complain of?—Speaking, not for myself, but for the masters generally, they consider it a great grievance that an old master of 15, or it may be 20 years standing, has no accession of rank, so that he is still junior to the junior lieutenant in the ship. I have never felt that myself particularly, but I know that that is a great cause of grivance to my brother officers. Another thing which they suffer under is, that the old masters have nothing to look forward to; they have no prospect of any rise. I do not mean in rank; but there are no shore berths for them at all since they have kept the master's attendants on after they have attained the age of 60, which shuts out the senior masters at present serving from any prospect of getting such an appointment. The master attendantships were places to which they always looked forward. It was formerly the custom to change the master attendants when they had served 10 years, but as we read the circular now, they can remain in till 65, which will be the means of keeping those at present in, 15 or 18 years.

101. Then the masters do look forward to a

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master attendantship?—Yes; that is the only thing which they have to look forward to. I have served 20 years as master, and have looked forward to that all my life, but I see but little hope of it now.

102. The master attendants hold the rank of commander, do they not?—Yes.

103. Are the officers now holding that position to do so to the age of 65?—We infer that they may do so; we have nothing positive to go upon. Commander Macdonald has been master attendant over 12 years, and so has Commander Pearn of Deptford.

104. What measures would, in your opinion, remove the discontent which you have stated to exist among the masters in the Navy?—I think, in the first place, if the masters were put back into the position which they originally occupied when they took precedence of the surgeon, the paymaster, and the engineer, that would be one step in the right direction. The next question, with regard to seniority over lieutenants, is a very difficult one, and I do not know how it is to be met. If a master of a line-of-battle ship could rank after the first lieutenant, or something of that sort, it would be desirable; but he ought not to be subordinate to every young lieutenant who has not sufficient experience to take command over him.

105. You consider that that is a point which the old masters particularly feel; their being junior to the junior lieutenants?—Yes, that is a great cause of complaint. I cannot say that I have ever felt it myself particularly. I make that remark on the part of my brother officers, not on my own.

106. You have served in all classes of ships, have you not?—Yes, in all classes of ships. I have been master of line-of-battle ships now ever since 1847.

107. Do you think that it would be beneficial to Her Majesty's Navy that the classes of masters and second masters should be done away with, as a separate branch of the service?—No, I do not. I consider that a captain ought to have an experienced navigating officer, upon whom he can always rely; I think you may call them sailing lieutenants, or any other name you please; but you must have a class whose duty it is to attend to the navigation, and he must have served some years in that position before he can become a good responsible navigating officer. For instance, in the case of a squadron of line-of-battle ships, leaving the Baltic and coming through the Belts, up the Cattegat, round the Scaw, and down the North Sea, in the winter time, you want a reliable officer, of great experience, to conduct the ship. I consider the mere navigation of a ship when at sea as almost the least part of the master's duty, because when he is out of sight of land he is "quite in clover." It is when she closes the land that the most difficult and arduous part of the master's duty commences; and the captain has so many duties to attend to himself, that he must have somebody to help him. A good captain will not attempt to do everything in the ship: he will not interfere with the several officers any more than to see that they perform their proper duties; and to do that he is fully occupied. He cannot take the navigation of the ship upon his shoulders; he ought to have a navigating officer; and I think that a navigating officer ought to be continued in that line of service, in order to give him the necessary experience.

108. That experience is particularly required in a large ship, is it not?—Particularly so.

109. Will the masters always have had a certain amount of experience under the present state of things?—Yes; and if you bring up another class of men, and call them sailing lieutenants, there is no reason why they could not do it as well as masters, perhaps better, if they are better educated when they commence, but you must keep them at it.

110. You would prefer keeping the class?—Yes, changing the title of master to that of sailing lieutenant, for to all foreigners the term master applied to an officer below the captain is ambiguous, as the master of the "Tiger" learnt to his cost when taken prisoner during the Russian war. He was treated as a non-commissioned officer.

111. In speaking of the late alterations, you refer chiefly to the alteration of rank?—Yes; the engineer and the paymaster and the surgeon have all relative rank, a grade above that of the master. It would be impossible to please all the masters, but I think I may say, on the part of most of them, that we do not seek to command ships of war at all; we think it would be an injustice to the other officers of the service. If a master (unless for distinguished service) is picked out and made a commander, it is an injustice to those who have done their duty as first lieutenants, and I do not think that the masters have any right to look forward to that except for distinguished service.

112. The masters look forward to a command which is now given to masters, namely, the command of store-ships and troop-ships, do they not?—No, I do not think that they look directly to that; they look more for berths ashore, such as the master-attendants' berths.

113. They are stepping-stones to others very often, are they not?—Yes, they have been considered so.

114. If the rank of commander were given to the masters in command of separate ships, which are now used as troop-ships and so on, do you think that that, amongst other things, would be satisfactory?—I have no doubt that it would satisfy a large portion of the class, but it must be remembered that there are now no troop-ships commanded by masters.

115. With regard to half-pay, a master of a certain service has very frequently more pay than a commander, has he not?—Yes, for long service.

116. So that it would be a disadvantage to him to be promoted or transferred?—Yes.

117. I understand it to be your opinion that there should be a navigating class?—Distinctly.

118. You are of opinion that it would be too much to place upon the captain the duty of navigating the ship, in addition to all his other duties?—Certainly; it is quite out of the question. The captain of a line-of-battle ship has very important duties to perform to keep her ready for battle, and all sorts of contingencies, more especially during a time of war, and he cannot attend to the navigation except in emergencies, when he may think proper to do so.

119. Do you know with whom the navigation rests of the large ships that go to Australia, Calcutta, and elsewhere, in the merchant service?—I believe the captain navigates the ship to a certain extent, and I believe the first mate is also

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a navigating officer; but I do not exactly know what is the rule.

120. In the merchant service there is no separate class for navigation, is there?—No; the captain, directly he gets clear of his port, has scarcely anything to do, but to look after the ship.

121. Do not you consider that pilotage is a very important part of a master's duty?—Most important.

122. Do you refer to pilotage in the home ports or in foreign ports?—I mean both. We were sent up to the Baltic without pilots, but the masters' previous experience enabled them to get the ships through with, I may say, a considerable degree of credit. The pilots that were taken out in the ships were perfectly useless the moment they got clear of the Goodwin Channel.

123. There is no doubt that the masters of the Baltic Fleet did perform their duties admirably; but is there any reason why a lieutenant should not have done equally well?—Provided he had had the necessary experience, certainly not; I know no reason whatever.

124. Had the masters any experience whatever in the Baltic besides the charts?—Only that knowledge which, after a certain number of years' experience, becomes a faculty in a man; he attains to a kind of instinct which tells him where rocks and shoal water are to be expected.

125. Is there any reason why a lieutenant constantly at sea and in practice should not acquire the same knowledge?—None whatever.

126. Is there anything in the education or training of a masters' assistant or a second master, that would lead them to acquire a knowledge of pilotage or navigation more than a lieutenant?—At present, from the manner in which naval cadets and midshipmen are educated, I consider that they have an advantage; that they are better educated, and that, if they are taken from their present duties and employed to navigate ships, I have no doubt they will equal if not excel the masters in the course of time, but they must be kept at it as the masters are now.

127. Still, as I understand you, you would wish them to be kept as a separate class?—I do wish the masters kept as a class, as I wish to have an experienced navigating class of people who have been a number of years in the service, and who have had the responsibility on their shoulders for some years of conducting a ship under all circumstances.

128. Would you for that purpose give them a different education from that which they receive at present?—I think that the education of the present class of cadets and midshipmen who are afloat, if trained as sailing lieutenants, would answer every purpose, but they must be kept at it.

129. You think that their education is sufficient?—Yes. You do not require a very great amount of education in order to navigate a ship. A moderate amount of education with a little common sense, I think, is sufficient.

130. Is not one great guarantee for the masters' facility in pilotage and navigation their being constantly employed?—That is the key of it all.

131. And there is no reason, is there, why officers in another rank should not do equally well with their facilities?—None whatever. I should be very sorry to entertain such an opinion.

132. Still you would like them to have experience in that particular branch, would you not?—Yes; there should be a navigating class, and if you have a navigating class, you must keep them in that class, for it takes some eight or ten years before a man acquires that faculty of knowing what to do with a ship under all circumstances, near land, by night and day, in thick weather, and so on.

133. It would not do indiscriminately to select them from the lieutenants, would it?—No.

134. If you have any suggestion to make to the Committee beyond what you have already stated, the Committee would be glad to hear it?—I have already made a suggestion, if such a suggestion could be adopted, with regard to the rank of master corresponding with that of lieutenant. The matter is surrounded with difficulties, but I think something might be done. I go to sea in the "Duncan," and I am junior there to the junior lieutenant, but I must repeat what I have already stated, that I have never felt the grievance myself. Nevertheless, there are many of my brother officers who have felt it and expressed themselves very strongly about it. If the masters could be ranked after the first lieutenant, or something of that nature, that would meet the point, and I do not see then that there would be very much to complain of. The surgeons, paymasters, and engineers have got the relative rank of lieutenant colonel, and their widows get pensions corresponding, while the widow of a master of 20 years' or longer service is deprived of that advantage.

135. Formerly it was the custom to employ the master assistants and second masters almost exclusively in the lower decks and the holds; do you think, with reference to Article 22 of the Admiralty Instructions to Masters, that their position is now improved?—No, I think that they are still kept too much below; they are kept about the lower decks and the holds still.

136. In many ships I have seen lately that the master assistants have all kept watch with the midshipmen; do you think that that is generally the case now?—In the ships in which I have served lately that has not been so. I have not served in sea-going ships for the last three or four years, but while I was serving they were kept too much below.

137. Do you refer to the second masters as well as the master's assistants?—Yes. I have never seen a second master employed on any duty on deck of late years.

138. Have you ever seen the master's assistants, or second masters on deck when a vessel has been going into harbour?—Not as a rule; it has only been when they have been sent for by the master. During the whole time of my service as a subordinate officer, and I was eight years master's assistant, I kept very little watch. On board the "Vernon" and the "Conway," for nearly four years, I was the mate of the main deck. The second master never did any duty except in the hold.

[The Witness withdrew.

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139 Will you state what rank you hold in the Navy?—That of master commanding. I was made master in 1844.

140. Will you state shortly your length of service as second master and master, mentioning the names of the ships and the stations on which you have served?—The first ship in which I served as second master was the "Persian" on the coast of Africa, in 1840; then in the "Wolverine" as acting master on the same station; then in the "Iris" as second master, on the coast of Africa; in the "Brisk" as second master in charge; on the coast of Africa; and in South America, in the "Rhadamanthus" as second master, on the Irish Station, in the "Flying Fish" as master, on the coast of Africa; in the "Cambrian" in the East Indies and China, as master; in the "North Star" in the Arctic regions, as master; and in the "Dee," as master commanding on the Channel Station.

141. Have you ever served in a line-of-battle ship?—Not as master or second master.

142. The Committee are informed that the masters in the Navy are discontented with their condition. Will you state what you believe to be the grounds of their dissatisfaction?—My opinion is that it in a great measure arises from the responsible duties which they have to perform, and the subordinate position which they occupy not enabling them to carry them out efficiently, and in the manner which it is necessary to do for the benefit of the service.

143. In what respect are you not able to perform your duties efficiently?—I mean particularly with regard to the navigation of the ship. We find ourselves in a subordinate position, and in charge of stores, where we clash occasionally with the other officers, and from our subordinate position that cannot be helped.

144. Have you personally found your position to clash with that of the other officers in the way you refer to?—Seldom. I have been extremely fortunate in that respect; there have been very few instances in which it has occured with me. In the ships in which I have served as master I have had the entire navigation of the ship, under the captain of course, but the charge has been left a great deal to me, and I have not been much in the way of that kind of collision; but it has occured, and has caused a disagreable feeling between myself and my messmates, I mean the senior lieutenants, on two or three occasions. As I am longer at sea, and getting older, I should feel this thing more and more every day.

145. With regard to the clashing of authority, you speak generally rather than from your own personal experience?—Yes; as I said before, I consider myself extremely fortunate in that respect.

146. But you are of opinion that that is the general feeling among the class of masters?—I have not a doubt that it is the general feeling amongst officers of my class.

147. I presume that it is very frequently quite as much a matter of feeling as of actual inconvenience; is it not so?—In a great measure it is so, no doubt.

148. The clashing that you refer to is chiefly with respect to the lieutenants?—Yes.

149. With regard to rank in other respects is there a feeling of discontent existing with respect to other classes besides lieutenants?—Yes; we feel that latterly the same measure has not been meted out to the masters as has been done to other ranks. For instance, in the case of those officers as to whom we have always been held to have a relative rank above them, in the changes that have recently taken place we have been left behind, and that has been owing in a great measure to our executive rank.

150. I hold in my hand a petition to the Board of Admiralty, dated the 12th of November 1860, and signed by yourself and other officers; does that petition embody what you consider to be the grievances of your class?—Entirely so. I think that in that petition all our grievances are plainly put forward.

151. Since that petition was presented there has been an alteration, has there not?—Yes; and that alteration has increased the feeling which we have had with regard to our being left behind officers with whom we had always ranked previously. In fact, we consider that we have lost ground latterly in the last instructions that have come out. I refer particularly now to the paymasters and engineer officers.

152. The advancement of surgeons was previous to this last order, was it not?—Yes; it was previously to that.

153. The position of the masters since the date of the petition has only been altered in one respect; that is to say, with regard to pay in flag-ships?—Yes, I think that is the only alteration. There has been an increase of pay to masters of flag-ships on foreign stations.

154. And in the Channel also?—Yes; but only when on active service. That is the only change that I can remember.

155. What measures would, in your opinion, remove the discontent which is now stated to exist?—I consider that it would be removed by opening out promotion to them, or giving the masters a hope of benefiting their position by rising in rank, and in such a way that their position should not be allowed to clash with the executive rank in the navy, which, I think, might possibly be done; but under the present system we remain a master from the beginning to the end, and possibly we may not make up the whole time for the higher rate of retirement. Under the present system of the navy the Committee know how difficult it is to keep continuously employed. I was made a master at 29 years of age, after 14 years' service, and to get the higher rate of pay I must, after I have been confirmed master, make up 20 years of actual sea time as master to entitle me to the retirement of captain's rank at the age of 60; so that, how is it possible, under the present system of the navy, that I can get that retirement when I may be four or five years ashore on half-pay? There is then no possibility of making it up. There are only a very few of the most fortunate men who may hope to attain the highest rates of pay. If one looks at the regulations, it may appear all very well that we are entitled to this, yet how very few of us can hope to obtain it. And, moreover, there are great responsibilities attached to a master's position, and certain capabilities are required of him. As men get old their nerves get shaken, and there is a time to which we ought to be able to look forward for some relief in

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in that respect. Taking the age at which a man is master of a ship, I would say that between 25 and 40 is the very extreme in which he can perform the duties efficiently, and with the amount of nerve which it is necessary for a man to have.

156. Then are the Committee to understand that advancement of rank and improved position are what you think would tend to satisfy the class to which you belong?—Yes. With regard to my own feelings, when I look back at those of my messmates with whom I started fairly in our first career together, I find that they have all gone beyond me, and I cannot help comparing my position with theirs—master still. When we were youngsters together they never took any position superior to me in any of the duties of the ship. For instance, I often kept my watch as an officer of the watch with any midshipman or mate at that time; but I find in the long run, that I am left entirely behind, and I am still a master, while others who are in the line of promotion have gone on, and very properly so, and are in a very superior position to mine.

157. There is a certain set off in the amount of pay, is there not?—The pay has been very much increased and very much improved of late; but when you take into consideration the position of the master and the duties which he has to perform, the pay is nothing more than the market value of the labour performed.

158. You look upon the master, I presume, as really an important officer on board a large ship?—Speaking as a master myself, I should say that he is next to the captain in responsibility.

159. And in a large ship it would be more necessary that he should have a large amount of experience?—Undoubtedly, and in the present days of steam, with the very large-sized ships, and with their necessarily great draught of water, I think that the responsibilities of the master's position are considerably increased; for this reason, that it is not as it was in the olden time, when a vessel was depending upon the wind principally; now, under steam, you are continuously moving, and by the instructions, it is the duty of the master to be always on deck, whenever we are in pilot waters, or approaching any danger; and the master, in order to be able to stand the work, exposure, and fatigue, must necessarily be a young man, and a man possessing a good deal of nerve, so that from these circumstances his position has been very materially altered lately. A man to do his duty efficiently ought almost to live upon deck.

160. Do you think that the masters of those ships of heavy draught, that you speak of, could be trustworthy or efficient, if they had not had considerable experience before in the same way?—Before a master is eligible to this appointment, if he has been kept continually employed, he ought to have acquired that experience, because the very young masters are not put into these large ships at first, they are obliged to acquire their experience in the smaller vessels.

161. It is very important, is it not, for large vessels that the master should have had a previous servitude in smaller vessels?—Yes.

162. Do you think it would be beneficial to Her Majesty's navy that the class of master and second-master should be done away with as a separate branch of the service?—My opinion is, that you would add considerably to the efficiency of the officers in the service, if the masters, as a class, as they are at present, could be done away with. I am speaking now as a master in command of a ship; I think that the entire navigation of the ship, and all the responsibilities attached to it, ought solely to be entrusted to one person. I think that that is the duty of the captain of the ship.

163. Do you mean that the captain should have the sole responsibility, and that there should be no one under him particularly allotted to that duty?—The captain should have the sole responsibility, but I consider that it would be of very great importance that the officers under him, for instance, that the lieutenants should be obliged to be able to navigate the ship and take the responsibility that the master has at present more upon themselves than they do now; and the only way to do that is this: we know that the education of the second master and sub-lieutenant is precisely the same until the time that they obtain their promotion, but after that the second master does not have the same experience as the sub-lieutenant, because in the service in general, the second master's duties are done in the hold, and therefore he has not the means of acquiring the experience that he ought to have. The sub-lieutenant, from the first moment that he enters the service, has been keeping his watch upon the deck, and though in that junior position, yet he has been in charge of the watch; but the very moment the one becomes a master and the other a lieutenant, I think, as a rule, the lieutenant drops the navigation altogether, whereas the second master feels that this responsibility is put upon him, and he must qualify to make himself capable of performing the duties, or he had better not undertake them. Therefore in the case of the lieutenant, the responsibility is not put upon him, and there is no necessity for him to qualify; but undoubtedly the lieutenant would qualify, and would be just as efficient as the master, if he were obliged to perform the master's duties.

164. The lieutenant and the second master, it is supposed, are upon a par so far as experience goes?—Yes, and as far as capabilities go.

165. How would you give the lieutenant the necessary experience which is now attained by the master of the larger vessels?—By making him feel that he would be obliged to do this duty and take the responsibilities upon himself; that is the only way that I can see.

166. My question had chiefly reference to experience?—He would have the same opportunities as the second master, because their age is about the same.

167. They begin the same; but how would you appoint men to the larger class of vessels of great draught, which you mentioned just now, who would have sufficient experience for the work?—I think that might be met by selecting the lieutenants who show the greatest aptitude for those duties, and by confining them to those duties, and letting them pass into the line-of-battle ships. And as an inducement, there should be a chance of promotion for them afterwards; there should be a greater chance of promotion for those men than for those in the ordinary line of service.

168. And we may presume that the good men would be promoted?—Undoubtedly; the fact of taking those responsibilities upon themselves, and making themselves acquainted with those duties, ought to lead to promotion.

169. If they are not a separate class, they would probably have nothing more to do with navigation

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navigation in the larger ships?—No, I think you must have to a certain extent a separate class of men who give their energies and devote their minds to this particular duty, a knowledge of which is only to be acquired by experience.

170. How is that separate class to be established, as you propose?—I think it could be done without interfering with the executive branch by confining them to that particular branch. In the army, there are the engineers, the artillery, and the line; but those different branches do not clash with each other, and it might be done in that way in the navy, by confiding them to that particular class. Call them by any name you like, but as an incentive to them, they should have the hope of promotion.

171. Then it is more the hope of promotion that you look to than the doing away with the class?—Yes, that they may look to promotion in that particular branch of the profession.

172. I understand that you do not look to doing away with the class of navigating officers?—No, not entirely. I mean this: I think that those men who qualify themselves for those offices should be the men selected first for promotion, and that the fact of their having qualified themselves should not keep them in that position, because, if so, I presume that you would not get men to qualify themselves.

173. But at the same time you state that you think that we want men who have had experience in that particular class to take charge of the larger ships?—Yes; they should take their training in the smaller ships and then pass from them to the larger ships.

174. At present the masters of the larger ships, in general, are men of very considerable experience and practice, are they not?—They must be so, because the fact of their being appointed to those ships shows that they must have had previous service in smaller vessels.

175. How would you obtain men with an equivalent amount of experience to take charge of the larger ships if an alteration were made as has been suggested?—The officers of higher rank in this navigation branch must take that position.

176. If you transfer the duties of the master to this navigation branch, would you promote a man from a junior on the navigation branch to a senior on the navigation branch?—Yes, when qualified.

177. In fact, it would be very little alteration from the present system of masters, except that you would start fair with the mates?—Yes.

178. From mates you would branch off?—Yes; but I would put more responsibility upon the captain of the ship with regard to the navigation; but these officers under him who assist in the navigation of the ship should be able to rise in position by promotion. My ideas may be peculiar upon that point. I am in command of a ship myself, and in the position that I occupy, I feel that I could not tolerate any one in her to navigate under me; in fact, I do it all myself. I take the sole responsibility of whatever happens in that ship, and I am ready to abide by it myself. I could not leave it in the hands of another man to do this work for me. Moreover, when the captain of a ship has this responsibility, he will take care, whenever he is in pilot waters, that all the energies of the officers and the crew of the ship shall be devoted to looking after her safety.

179. Would not that equally apply to the present system, under which the responsibility really rests with the captain?—As master of the ship I have found frequently, in pilot waters for instance, that the order book would come down, that the officers of the watch shall attend to the master's directions, and of course then I feel that the thing is entrusted solely to me; but the captain is made aware of any extraordinary changes that take place through the night, and though he may not be actually on deck, still I think that the captain should be solely responsible in the event of anything occurring. Without any divided responsibility he would ensure his ship running no risk, and he would not keep her in shore if he could possibly put her off.

180. That alteration could be effected by giving the captain the responsibility without any alteration in the present class of masters, could it not?—Yes; the principal part of the responsibility should attach to the captain of the ship.

181. What would be your opinion with regard to the establishment of a navigation class?—Of course, in the navigation of a ship it would be necessary for the captain to have assistance; but the responsibility in the event of anything occurring should be more upon the captain of the ship than upon the officer of the navigation class who performs that duty.

182. Supposing the responsibility to be placed upon the captain as you propose, why should there be an alteration in the present class of masters?—At present they take part of the responsibility for the safety of the ship.

183. But admitting that that responsibility is removed as you suggest, what necessity is there for the alteration?—I think then that it would be a class of officers that you would have no use for. For instance, with regard to the stores and the rigging, the lieutenants ought to know more, and pay more attention, as I should consider, to that particular duty, instead of having a master to look after it; it would add considerably to the efficiency of those officers in the experience they would gain.

184. I understand you to say that you would still have a navigating class?—Yes, to assist the captain in navigating.

185. Why should not the present navigating class do that duty?—I do not think that the system works well.

186. Why do you think so?—The subordinate position in which they are placed interferes with the thing working well. I can imagine no other way in which it could be done but by the master's position being done away with.

187. Supposing the masters are not done away with, but that the alteration is made which you suggest, of the captain having more responsibility; what alteration could you suggest with regard to the masters as they stand at present?—I think that they should have an opportunity given them of rising by promotion, instead of their being kept permanently as masters. Then they would have an inducement to exert themselves more than you would expect men to do who have literally nothing to look forward to in the way of promotion.

188. Do you mean promotion in their own class, or promotion into another class?—I think possibly it would be better if it could be done, to keep those men in a class by themselves, and then it would not clash with the other executive branches.

189. You consider that they are entitled to promotion?—Yes; they ought not to remain masters

from the time they enter Her Majesty's service, until they are past servitude.

190. At present, with the exception of the master-attendants, they get increased pay, but not promotion?—They have no promotion. The master-attendantships are the only promotion open to the elder masters, and the only thing that they have to look forward to.

191. If there were some opening or promotion in the present class; for example, a superior class of masters in command of storeships or other responsible positions, do you think that that would tend to satisfy them?—There are so few of those appointments, that they are not sufficient to satisfy the number of masters that are looking forward to them.

192. Still you would prefer keeping them as a class, and giving them promotion on to that class?—Yes, if it could be done; I would keep them to that class for promotion.

193. Are the Committee to understand, that in your opinion, you would do away with the second master altogether?—Yes; the duties in which he is at present employed in the stowage and the holds, very materially interferes with his acquiring the necessary knowledge of the duties which he will afterwards have to perform as master.

194. You state, that you prefer having the masters as a separate class; do you think, that on joining the service, there should be a second class of master's assistants, or that they should branch off afterwards as masters?—I think it would be much better for the efficiency of the service, if that duty was not so essentially put upon one class. As I said before, officers would necessarily feel that they must make themselves acquainted with the navigation, and acquire the experience which they would attain in that particular duty.

195. Formerly, it was the custom to employ master's assistants and second masters, almost exclusively on the lower decks and holds of ships. Do you think, with respect to Article 22 of the Admiralty Instructions for Masters, that that system is now improved?—I have not been in a large vessel lately; for the last six years, I have been in command of a vessel myself, and I cannot speak to that point.

196. What have you seen to be the custom when you were master?—In the "Cambrian," those officers were continuously employed below. When a second master becomes a master, he ought to possess a knowledge and experience of the duties that he will have to perform, so as to be able at once to step in to that position.

197. Not having had experience during the last six years, you cannot say whether that arrangement is altered?—Whether it is the practice at present, I do not know; but I know that in the last ship in which I was master, it was so as a rule, that the second master and the master's assistant were required to be below.

198. Supposing that the class of masters is retained, are there any improvements which you could suggest with regard to their bringing up, and their education?—I think that the education of the master's assistants and the second masters, is a thing of great importance, and that they should not be left as they are now. For instance, there is the "Britannia," and they might be allowed to be sent on board her for training. Their present means of education are not to be compared with those which the naval cadets are able to get, and I consider it is of great importance that they should have the same training.

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199. You are aware, probably, that they have to undergo an examination very much the same as that of the cadets?—Yes, very nearly the same. I do not know what it is lately, there has been a change; but I think that the present training of the master's assistants would be very much improved by making it precisely the same as the cadets have.

200. You consider, that to a certain extent, the class of masters should be done away with?—Yes.

201. Will you state explicitly, to whom the special duties now performed by the master, should be entrusted?—It should be by the lieutenants qualifying themselves for the navigation of the ship more than is now done. As I have stated, the lieutenants, immediately after they have passed their promotion, generally speaking, feel that they are not liable to be called upon to take this responsibility upon themselves, and they naturally do not keep up their knowledge. For instance, I have been on the coast of Africa when we were taking and sending away prizes occasionally, and obliged to send a lieutenant in charge. This officer may have been of only a few years' standing, and he has to take the prize, say, from the Bight of Benin up to Sierra Leone; this is a long trip of five or six weeks, and the state of mind that an unprepared officer goes away in, as to how he will find the port, is something terrible.

202. Still you say, that when he becomes a navigating lieutenant, you would keep him in that class, as I understand you?—Yes; there is an amount of experience which a man necessarily must have for that work, and therefore I think that he should be as much as possible retained in that position; at all events at present.

203. You have stated, that you would not admit for a moment, that any other person than yourself should navigate the ship that you command?—Just so.

204. Is there any reason why a captain or commander should not equally navigate the ship that he commands?—None at all that I know of.

205. Do not young commanders and captains generally navigate the ships which they command?—Not within my experience. Speaking of the present day, I have been commanding a ship now for the last six years myself, but, in my experience as master of a ship, I have not found that to be the case.

206. You have stated that a lieutenant and a young master start fair; does not the lieutenant get an education as a cadet on board a training-ship, and is he not on deck, always keeping his watch and seeing the ship manœuvre, whereas the master's assistant and second master are kept entirely in the hold and between decks?—Yes, that is so.

207. Have you any acquaintance with foreign navies?—Merely by report.

208. You do not know whether any other nation besides the English, has the rank of master?—I believe no other navy has.

209. Have you had conversations with the officers of other navies about their system?—I have not.

210. Do you consider it useful that a master should pass an examination in pilotage?—It is of great importance that he should know the pilotage, if he is confined to the Channel Station.

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211. The present examination, I believe, is only for the English Channel; would you extend that examination further?—I would extend that examination to the stations on which the parties have served.

212. On a foreign station, how is pilotage acquired?—By the constant visiting of the various ports.

213. But as the master visits the various ports, the lieutenant or captain visits equally the various ports, does he not?—Yes.

214. Might he not equally acquire a knowledge of pilotage as the master does?—Yes, equally the same.

215. Were you in the Baltic during the last war?—No; I was in the Arctic regions.

216. Do not you consider that it is of great advantage to have more than one officer on board possessing the necessary experience; supposing the captain dies?—Decidedly; the greater the amount of experience in the officers on board a ship the better the service will be performed.

217. Have you not often seen an instance where a ship only goes into harbour for a short time, where the captain has other duties to perform, and whilst performing which the master or other officers may be obtaining information about the pilotage, and going into the harbour?—The master and other officers by the orders of the captain could be with him and under his immediate eye. The captain could order them to take the ship in or to take her out so as to insure their acquiring this experience.

218. Has not the captain very frequently special duties to perform which would prevent his attending to this one duty of gaining experience of the port, particularly if he is only for a short time in the port?—There are duties, of course, which the captain has to perform ashore which might interfere with his gaining the necessary knowledge at the time.

219. You have stated that you are capable of conducting the navigation of Her Majesty's steam vessel under your command. Do you think, if you were captain of a ship with a large body of men to discipline and the ship to keep clear for action, that you would be able to perform that duty?—I think so, considering the officers I should have under me to carry out those duties, the commander and the senior lieutenants of the decks.

220. You would be able to undertake the responsibility of the navigation solely?—Yes.

221. You stated that you considered the responsibility greatly increased by the introduction of steam, because you are constantly moving; do you not consider that if you could pass a shoal in an hour, making a straight course, your responsibility would be lessened; whereas if you were in a sailing ship you would be beating about in the neighbourhood of that shoal for two or three hours?—You would cover more ground under steam, the rapidity of your movement is greater.

222. But you pass your danger more quickly?—Yes; but those shoals are stationary things, and you pass more of those dangers in a shorter time than you did before. If you have to trust to sails alone you could take a wider berth of many of those things than you would do under steam.

223. You stated that you consider the master to be the next in responsibility to the captain; do you consider that he is more responsible than the commander of a line-of-battle ship or the first lieutenant?—Yes, I mean as to the navigation of the ship and the stores and rigging.

224. You have stated that the masters, in order to acquire the higher ranks of pay, have to accomplish a certain amount of servitude. If superior rank were awarded to them in their own line, would they not have the same difficulties to encounter in accomplishing the same?—The same thing would, under existing circumstances, apply then, of course, as now.

225. Then awarding them superior rank would not remove those difficulties?—No, under such circumstances, it would not remove them.

226. Have you any further suggestion that you would wish to make to the Committee?—No, I believe I have made all the statements that I wished to make.

The Witness withdrew.

[Adjourned to Monday next, at 12 o'clock.

Monday, 17*th February*, 1862.

PRESENT:

Rear-Admirl the Hon. C. G. J. B. Elliot, C.B.
Captain Washington, F.R.S.
Captain George Goldsmith, C.B.
Captain Charles Henry May.
Commander Cornelius T. A. Noddall.

Rear-Admiral the Hon. CHARLES G. J. B. ELLIOT, C.B., in the Chair.

ROBERT BARRIE BATT, Esq., Examined.

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227. WHAT is your rank and seniority in Her Majesty's Navy?—I was made master in May 1849.

228. Will you state shortly your length of service as second master in charge and as master, and also the names of the ships, and the stations on which you have served?—I served a very short time as master's assistant; nearly all my time was as acting second master. I was acting second master in the "Dolphin" and the

"Saracen,"

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"Saracen," in 1840 and 1841, on the coast of Africa, I was, after that, junior acting second master in the "Crocodile," employed in the West Indies, commanded by a master, carrying troops from island to island; and during the 18 months that we were there, the ship became so sickly that I became the senior acting second master until the ship was paid off. In the latter part of 1843, in 1844, and the early part of 1845, I was second master in the "Apollo," moving troops. Again, in 1845 I was senior second master in the "Hibernia," in the Mediterranean. I was there until 1846, when I was appointed acting-master to the "Amazon." From the "Amazon" I was placed as acting-master in the "Fantome." I remained in her from 1846 to 1848 acting-master; and I was a short time acting-master in the "Plumper," and was then confirmed in the same ship. I was four years in the "Plumper," from 1848 to 1853, in the West Indies and on the east coast of South America. In 1854 I was appointed to the "Amphion," in the Baltic, as well as in the last year in the West Indies, and was paid off from her in 1857. I was appointed master of the "Ganges," under the flag of Admiral Baynes, in the "Pacific," in 1857, and paid off in May 1861.

229. The Committee are informed that discontent exists amongst the masters in the Navy; will you state what you believe to be the ground of that discontent?—There are so many grievances that it would be difficult to enumerate them all, and perhaps my better way would be to mention the one that I feel the most; and that one is the want of reward for my past services; I am speaking now of myself individually.

230. To what kind of reward do you refer?—Being a master, he remains a master from the time that he attains the rank, and there is no possible chance of his getting any reward afloat, but retires as a commander, perhaps, at 56 years of age, or a post-captain at 65; it is impossible for a man to wait so long without feeling aggrieved.

231. You stated that there are other grievances; can you mention them to the Committee?—Another grievance that I could mention is, the masters' present position with regard to the civil officers in the service, who now take precedence of the master; whereas he always used to take precedence of them. Another grievance that I could mention is, with regard to the widows' pension. These I call the three great grievances.

232. What measures would, in your opinion, remove the discontent which is now stated to exist?—Speaking of the first case, I should be very glad to see the class abolished; and to see in some way that a master has some promotion. During the time that I have been in the service I have had no occasion to complain until after the Russian War. I was very young when I was made master, being only 23 years of age; and I have been acting from that time to this in that position as master.

233. Why do you wish to see the class abolished?—That I may have a hope of raising myself from the position that I now hold in the service. As a master on board a ship, I am always pleased with the duties. I hold the confidence of the captain, and, holding a very responsible position, I am pleased with it. But immediately one leaves the ship it does not do for a master to reflect upon his position at all. The charge that he holds does him honour, so far as he can carry his duties on well and satisfactorily with his captain. But yet he finds that he is ever a subordinate person.

234. Do you believe that the masters are content with their improved rates of pay and half-pay?—I think, with regard to half-pay, that we are exceedingly well paid, considering that a master, after 10 years' service, has only got sixpence a day less than a commander; after 15 years he has the half-pay of a post-captain. But I am not pleased with the pay which I have on service on board ship entirely, even now. I have been nearly 24 years afloat, and my pay is only 13*s.* a day. I should, however, mention that I only want about three months more to make it 15 *s.* a day. I have been nearly 15 years acting-master and master within two months and seven days, and I find that my pay of 13 *s.* a day is very small. I felt that particularly in the Pacific. I complain of it in this way: since I have been in the service I can go side by side with a paymaster in the service, who is a very great friend of mine. When I was second master in the West Indies he was clerk in charge, and his pay was then perhaps 100 *l.* a year over mine. He was about my age, but I was made a master one year before him. When a paymaster, and nearly every time we have met he has always had 100 *l.* a year more than I have had. He was a shipmate of mine, came into the "Amphion" with me, and I found that when I had 200 *l.* a year he had 350 *l.* I have been for some time in a line-of-battle ship on 13 *s.* a day; whereas this gentleman, if on board, has over 460 *l.* a year. Also the paymaster has benefited very much on shore by his position. He is able to hold a better position in a pecuniary point of view than I am. He is able to educate his children better than I can educate mine. The surgeon, again, in the service has always much more pay than the master. I could mention also the engineers, who have another advantage over the masters. The engineers are always employed. I could name engineers who were, I may say, subordinate to me years ago, and they are now my senior officers, and have better pay, because they are never on shore. I am speaking now with reference to full pay at the present time.

235. The masters appear to have now an advantage over their equals in the executive branch, in regard to pay and half-pay; do you think that those advantages have been given as a set-off against the limit placed on their rank?—I think it is not sufficient in any way, because the master most of the time he is at sea is paid very little more than the senior lieutenant. Taking all the time that I have been at sea, counting to the 1st of September last year, I have been 24 years at sea. As a subordinate officer I have never been unemployed. Since I have been a master I have lost 20 months.

236. What was your pay in the "Ganges"?—Thirteen shillings a day.

237. What is the pay of a senior lieutenant?—A senior lieutenant's pay would be 11 *s.*; but I commenced first of all in the "Ganges" upon 11 *s.* 6 *d.*

238. How many years have you been at sea?—Twenty-four, and I never lost a day while I was in the service as a second master.

239. Do you think that it would be beneficial to Her Majesty's Naval Service if the class of master, second master, and master's assistant should be done away with as a separate branch of the

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the service?—That is a difficult question to answer, because the service has to be considered first of all, before we consider the masters. According to my own idea I do believe that there is a master wanted in a ship, or that there must be a person in whom the captain can have some confidence. I should be very sorry to see a captain sent to command a large ship and find no officer who could navigate the ship in such a way as he could rely upon.

240. If the class were done away with, to whom should the special duties which are now performed by the masters be entrusted?—If the master's class were abolished I should be very glad to see a navigating class, because if you begin with the second master and the mate they have equal knowledge, and they have passed the same examination; but in the case of a master, immediately after he has obtained his mastership, his responsible position gives him knowledge from that time, because he gains experience gradually from time to time, as, perhaps, any other officer would not who is not placed in the same position. I think that there ought to be a class of officers brought up entirely for the service of navigating. I know that every officer is supposed to be able to navigate a ship, as a matter of course; but a man who is constantly navigating a vessel has certainly a greater knowledge and more power in that respect than anybody else, and it becomes easy to him.

241. Are you speaking of pilotage and navigation, or would you distinguish between navigating the ship and piloting the ship, because, as you are aware, they are different things. The navigation of a ship in the open sea you do not think much of?—No. That, again, in the present day, is considered more than it was formerly. You want a good officer even upon the high seas; there is such a great demand made upon the officers, and the means they have of furnishing information, which was never the case before.

242. I understood from your former answer that you thought that there should be some responsible officer at all events on board, like the present master?—Yes, I think there ought to be some officer who has been sufficiently employed in navigating a ship in such a way that he can assist the captain, because the captain has an immense deal to do as captain of the ship; and to have the navigation cast upon him solely is a very great charge; and if it is left to him to choose any one officer among the rest, he can scarcely make the selection, unless he gets it from the Admiralty first of all. Speaking of pilotage, you want an officer certainly to know how to pilot a ship.

243. Do you think that an officer who has had practice in that particular line is necessary?—Yes, I think so. For instance, in the Baltic War, a man to navigate a ship must know something about how to find the position of the ship, and a young officer perhaps would hardly know how to manage it. If you took a second or a fourth lieutenant of a ship who has not been accustomed to navigate a vessel, he is perhaps hardly put to if the question is put to him to find out where his ship is. A lieutenant of course has the same means of obtaining that knowledge if he is kept employed at that work, and I see no difference between a lieutenant and a master, if they have both been at sea employed in that way. I know that in the "Ganges" when we had no second master in a passage of 73 days, if the master had been sick, it was no question with us which of the lieutenants we should ask to do the master's duty. Without mentioning any names, we knew that there was one on board who could have done the duty as well as I could.

244. If the class were done away with, in what manner would you dispose of the masters, second masters, and master's assistants now in the service, having special regard to the claims of the many valuable officers on the master's list?—I should be very glad indeed to see the master's class removed altogether, so that I could see myself that I had the chance of receiving some reward for my services, and in that way I should be very glad to be called either navigating lieutenant, surveying lieutenant, or staff lieutenant, or to be called a commander, or a navigating, or a surveying, or a staff officer, so that at the same time I may be doing my own duty without interfering with the duties of the first lieutenant or of the commander. I think that many officers in the surveying service who were a long time lieutenants, would have been very glad to fall into that line. The pay is greater than that of lieutenants, and there would be the chance of being made commander, as well as of retiring earlier.

245. What would be the effect upon yourself in regard to pay, if you were made a commander and placed on half-pay?—The effect of my being made a commander would be that I should lose. If I were really made a commander now, I should lose 1*s.* 6*d.* a-day; because in the course of three months I should have a post-captain's half-pay, 10*s.* a-day.

246. If the classes were amalgamated, you think that it would be necessary that the navigating officers should retain a certain advantage in pay?—Certainly. I think if there were a regular navigating class brought up in that line they would receive the same pay as those who are now holding the position of master are receiving; and in that way it would be an advantage to an officer entering into a class of that kind, and many would be glad to take that advantage with that increase of pay over lieutenants.

247. Those officers would thus enjoy the advantages of progressive rank, would they not, together with the superior rates of pay which are now granted as a set-off against the limit placed upon that rank?—It would be a very great advantage to an officer receiving that rank in respect of pay. I mean that an officer now employed would not like to fall back upon less pay; but at the same time, on account of his rank being less, he is receiving higher pay for it.

248. With respect to the duties of master's assistants and second masters, where are they generally placed to do their duty in a large ship?—The second master, I should think, is mostly on the lower deck and in the holds; there have been so very few mates of any standing, of late, that the second master is generally on the lower deck.

249. Do the master's assistants keep watch?—When they join the service they are very rarely down in the lower deck; because, as junior officers, they would be of no use to the second master at all. When a master's assistant has passed his fourth yearly examination he may be of some service, and he is placed below; but before that he is of very little service, and he is generally kept on deck; but the second master, or master's assistant, if he is 18 years of age, is generally down below.

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250. Is the designation of master a point to which you object?—Certainly; I complain of the term.

251. Could you suggest any other designation, supposing the masters are retained as a class?—I should be glad to be called staff-lieutenant, a navigating lieutenant, a surveying lieutenant, or any other term of that kind; and knowing from that, I had a step still to obtain for my services, and be made a commander. Where a master loses is, when he leaves the ship; it is not on board; there he is generally pleased with his position.

252. Do you never find your position clash with the lieutenant's?—I can fancy many things that might happen. If I were at work on the lower deck of a line-of-battle ship, it would be a very disagreeable thing if I had a lieutenant with whom I was at variance, he being my senior officer. For instance, if I found the ship's cable across her hawse or across her cutwater, he would not, perhaps, follow my advice, although I might find that in heaving they were not gaining an inch; and I should have to go on deck to the first lieutenant or the captain and complain about it, which would be very disagreeable.

253. How would you suggest that the class of staff-lieutenant, or whatever you call him, should rank with regard to lieutenants?—I should think that he would take rank from the date of his commission.

254. He would be sometimes senior and sometimes junior to the first lieutenant, would he not? Yes; but he should not interfere in any way with the first lieutenant in carrying on his duty, whatever the seniority of the first lieutenant might be; he should confine himself to his own particular duties.

255. How would you define those duties in that case; on the lower deck to which you just referred?—In my own case I should be the senior, and I do not suppose that there would be a lieutenant employed of my own standing.

256. Still, as a junior master, the same difficulty that you have imagined in that case would occasionally arise?—Yes, it would in any way. The master, being the junior, of course would give way in a case of that kind; supposing those cases to occur, and they do occur in the service, although I must say that they have never occurred with me. There are cases in which a master may have to complain; one where he is sent away with a lieutenant; which would be a very serious thing, for who is to receive praise when the work is done.

257. You would propose that the master should rank with the lieutenants according to the date of seniority?—Yes.

258. You mean with the exception of the first lieutenant?—My idea is, that the staff-lieutenant, or whatever he may be termed, if he belongs to this navigating class, should not in any way interfere with the first lieutenant's duties, because his own duties are sufficient in themselves.

259. Would you wish for any alteration with regard to the responsibility of the master, or the staff officer, whatever he may be called, with respect to navigation and pilotage?—The question arises at once, who is the responsible man, and whether it all falls upon the captain or not. As I said before, I think that the captain ought to have some one to share the responsibility with him. In the foreign services I know that the junior lieutenant navigates the ship, and yet it is difficult to know how that duty is carried on.

260. I think you stated in your evidence that the captain of a ship would find himself in a difficulty in the Baltic, if he could only refer to the third or fourth lieutenant of a ship to navigate her?—I said that I think it would be very hard upon the captain himself not to have a person accustomed to navigate a ship along shore, and accustomed to navigate a vessel in pilotage waters; I mean a man who can take a sextant, and fix his position readily, without troubling himself with errors in compasses, as another person would do who had been brought up to it.

261. I think you have just stated that a second master is chiefly confined between decks or in the orlops?—That has been the case where the second master is senior, or, if not senior, an older person than the young sub-lieutenants now in the service; and in such a case the commander or the first lieutenant will have him on the lower decks and orlops.

262. Will you state to the Committee what there is in the training of a young master which renders him more competent to navigate a ship than a young lieutenant?—In this way: a master, from the moment that the responsibility falls upon his shoulder, is glad at once to obtain all the knowledge that he can possibly get, in order to fix the ship's position, having regard to the Queen's instructions as to what his duties are as master, which are very many.

263. That may be all very well as a wish in the young master, but does the wish give the knowledge; has he actually that knowledge?—If he has not then he certainly is not fit to be on board a ship with the captain.

264. I think you must have misunderstood me. My question is, how is a young master more competent to navigate a ship than a young lieutenant?—Not in any way at the beginning; the knowledge of both is alike at that time.

265. Then I presume that the reason why the master becomes more competent in the course of years is, that he is constantly specially employed in navigation?—That is the reason.

266. If a lieutenant had the same opportunities, might he not navigate a ship equally well?—Equally well.

267. Do you know any reason why a captain with a navigating lieutenant under him should not navigate and pilot a ship whenever it is necessary?—Certainly not, if that officer has been accustomed to navigate a ship.

268. That is to say, if I understand you right, if he has been kept constantly employed?—Yes.

269. You mean employed in that particular duty?—Yes, in this way: if you take a lieutenant out of a survey ship, he is just as fit to navigate a ship, and perhaps better, than some of the masters in the Navy.

270. Is there any reason that from the lieutenants generally they should not select officers to navigate the ship?—I should think there are many that might be selected, particularly considering the manner in which the officers are now brought up for the service and educated.

271. Has a naval cadet a better education than a master's assistant?—No, I consider not, because they are both under naval instructors.

272. Does the master's assistant go on board the "Britannia," and get his education there?—No, he does not.

273. Does not the naval cadet do so?—Yes, the naval

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naval cadet does. I have not seen anything which has been produced from the "Britannia;" but no doubt the education, from what I have heard of it, is most excellent.

274. Do not many of the young lieutenants go to the Naval College and study there for a year?—Yes.

275. Do many of the masters do that?—Very few. I have seen very many changes brought about by many of the masters' assistants that have been lately serving in the surveying ships. I saw that in the "Plumper" to a very great extent. I passed three who knew things excellently well, and they had that knowledge of navigation which many masters never possessed until they were placed in a position as master to learn them.

276. Do you think it would be a good thing if the masters were obliged to pass through surveying ships?—Yes, I should be glad to see that done.

277. Do you think that a general knowledge of surveying would be useful to all masters?—Yes, and to all persons in the service in any of the executive branches. But I should like to see that survey carried on practically; not merely taught in college, but carried on in gun-boats, or something of that kind, and at Spithead, so that they might be able to do their work practically.

278. The officers in command of gun-boats have been chiefly lieutenants, have they not?—Yes.

279. Have they had masters or second masters with them?—Not in the first gunboats; not in the Baltic. There were no second masters; the lieutenant did it himself.

280. And yet those vessels were well navigated, were they not?—I hope they were. I am not aware of any of them being lost.

281. Have you been in the habit of meeting foreign ships in the Pacific, and elsewhere?—Yes; I have met the French and American ships.

282. Were there any masters on board of those ships?—Their junior officers were generally found doing the master's duty.

283. That is to say, there was a sort of navigating lieutenant?—Yes.

284. Did not the captain take any share in that duty?—I am not aware of his taking any share in it. In the case of the "Merimac," I had occasion to be with the officers of that ship. We had been swinging for compass corrections. The Americans were not accustomed to swing their ships; and, seeing our plan, the captain of the "Merimac" came on board, and requested that his master might be introduced to me; and I learnt from him what his duty was, namely, that it was to navigate the ship with the captain.

285. Who was that officer?—I do not remember precisely; I think he must have been a junior lieutenant. I may be wrong in saying that he was not a lieutenant; he was a ward-room officer.

286. Have you any reason to suppose that he would be kept as a navigating lieutenant, or that he was one selected by the captain?—I think not. As he advances I fancy that the junior officer becomes again the navigating officer.

287. Is not the knowledge of navigation pretty general amongst the lieutenants in the American Navy?—Yes.

288. Did you happen to serve in China when Commodore Perry was there?—I was not there at the time.

289. Do you know of the fact, that a survey of two or three of the harbours of Japan was made by the flag-lieutenant of Commodore Perry?—I did not know that.

290. Do you think it would be desirable that the lieutenants in our Navy should have the same sort of knowledge?—Yes.

291. Do the lieutenants in our Navy generally know where the ship is when she is cruising about, or is that knowledge confined to the master generally?—Certainly to the master. The lieutenant, of course, has his own work to send into his captain; at least, it is so by his instructions.

292. Do you not think that having a separate class to navigate a ship, has a tendency to make other officers indifferent to navigation?—I do.

293. And taking into account the general benefit of the service, omitting for the moment any particular class advantaged, do you consider that it would be better to do away with the master, and make the lieutenants generally render themselves competent to navigate the ship?—I think that the service itself would benefit throughout by that in time.

294. If the duty of navigating was given to one of the junior lieutenants, how would you ensure, in the larger ships, men of practice and experience in that line?—I should think that before an officer should have the charge of the navigation of a ship of that kind, he should undergo a thorough examination in all branches of navigation.

295. Do you think that an examination, independently of practice, would be sufficient?—No; I think that practice is the great thing in all navigation.

296. It would still be necessary, would it not, that you should have a man of practice in that position?—Yes, I think so.

297. How would you obtain that?—A man may be a good navigator of a ship, but I believe you want a man at the same time who has been long enough at sea to take the charge of a ship by night, or on a long coast, if I may so say. I should not like to see a junior officer in a heavy ship having charge, unless the captain should be on deck himself at the same time with him.

298. Do you not then regard, as one advantage of the present system, the fact that the larger ships have masters who have gained experience in smaller vessels?—Yes. And a master who has been, I may say, a master or lieutenant, I do not care which, a man who has been accustomed to navigate a ship, and has been placed in such a way that he has been responsible for the ship, would soon gain confidence in his own work, and would soon after that do his work well; for I believe that a man of 30 years of age ought to be able to do anything in the navigation of a ship, and if he have not gained sufficient knowledge and experience by that time, he would rarely ever gain much.

299. That is to say, supposing he has turned his attention to that particular branch?—Yes.

300. Still, you would not like to entrust a large ship to a man who has passed a good examination, but who has not had experience in that branch?—No; I should like to know that he has been in some ship or other as navigator, or that his knowledge is known in many ways as a seaman, which is another great consideration in pilotage.

301. You state that you have met with officers of

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of American vessels; do you know what the American officers think of their system of navigating officers?—I have never heard the question mooted in any way, but I have heard the American officers speak of the masters on board ships in our navy, and they cannot understand why the master still remains a master, or why he has no reward. He is an executive officer, but he gets no reward for his services. In the French service also they do not know at all what a master's position on board in our Navy is.

302. Do you know whether the French are satisfied with their own system?—I am not aware. I was on board the "Constantine" frequently, and there was a captain and a commander in a 26-gun ship, and there the sub-lieutenant navigated the ship.

303. You have alluded to a want of reward for your services; had not you a full knowledge of the position which you were seeking when you entered the Navy, and have not many benefits been conferred upon your class since that time?—I came into the service too young to know what advantages I should have gained beyond the pay; but speaking of the advantages which I have received, there are none at all that I can think of in the service, excepting in half-pay.

304. Not in the rate of pay?—I have received 1 *s.* 6 *d.* more. The pay has been increased, I know; but an officer would rarely, after 40 or 42 years, be at sea. There would hardly be a master, in my opinion, who would ever be at sea to obtain anything beyond his 15 *s.* a day. I have been now nearly 16 years employed acting as master, and my pay is 13 *s.* a day; and I must go to sea again, or be employed five years and some months more, before I can have an increase of pay after 15 *s.*

305. Are there not many officers in the executive branch at the present moment, of about the same standing as yourself, who are still lieutenants, and have very little chance of getting any further?—When I was first made acting-master I was 23 years of age, the lieutenants of the ship that I was first in were older men.

306. Are there not lieutenants of about your own year?—The lieutenants in the service now are very young men.

307. But are there not lieutenants of about your own standing as master that were made lieutenants the same day, and are there not many of them still lieutenants, with very little chance of getting any further?—I see none employed, or hardly any, and what has become of them I do not know.

308. I see by the Navy List that there are lieutenants of 1849, 1850, and 1851, and you were made a master in 1849?—Yes.

309. I see there are several in charge of gunboats?—But I see none in sea-going ships.

310. If a second master were first promoted to master, and placed in a sloop with a commander, would that commander have an experienced officer who would be capable of giving him advice as to the navigation of the ship?—Yes, because that second master has very likely been a second master in charge, and has been navigating a vessel three or four years before.

311. If he were taken immediately out of a line-of-battle ship, in what position would the commander be?—I should doubt in my mind the knowledge of an officer so taken on board. If the Admiralty thought proper to appoint such a person, I should take the earliest opportunity of making myself as commander acquainted with the capabilities of the second master or the master, as the case might be.

312. Is not the knowledge of the pilotage of harbours, for which the master is obliged to pass an examination, frequently acquired merely from charts and books?—That is all.

313. He has no personal experience of those harbours, has he?—A master, from the longer time he has been in the service, and been constantly employed, becomes acquainted with foreign ports and foreign roadsteads; but with regard to the coast of England, there are very few masters who know anything at all about it, except just the Channel itself and Spithead.

314. The knowledge that he has of many of those harbours, as to which he passes an examination, he has solely acquired from charts and books?—Just so. He has very little knowledge of it; it is mostly acquired abroad, but he is forced to make himself thoroughly acquainted with it from charts and books, because the coast is well surveyed, and he makes himself acquainted with the good anchorages and the tide, and so on.

315. Did you have any master's assistant in the "Ganges?"—I had two.

316. Were you aware that the fathers of those masters' assistants were naval officers?—Yes.

317. Of what rank were they?—I think both of them were sons of masters in the Navy.

318. Then they placed their sons in a class of which they had felt the disadvantages themselves?—I should think so. But if the question were put to me, I should be very sorry to place my son as a master in the Navy.

319. But those men had done so?—Yes; but one of them was a poor man on the Coast Guard, and he had a very large family, and was unable himself to go to sea for a long time.

320. Have you been much in company with French ships?—Not much. I was a little, in the Pacific, and being in the flag ship I had an opportunity of exchanging compliments.

321. Are you aware that the French ships are navigated by their junior lieutenants?—Yes; I think the officer was a ward-room officer.

322. Have you heard of many accidents happening to their ships?—Not at all.

323. Would you accept a commander's rank at the present moment, and a commander's prospects and pay altogether, in exchange for your present position? — No, I would not receive a commander's pay at this present time. I should like to have the term "commander" applied to myself, and still continue my own duties.

324. But you would not accept a commission at the present moment in the executive branch, and take their chances?—No; for this reason, that I should have lost all my chance of being employed.

325. You are unemployed at present, are you not?—I am. I have been unemployed since May last.

326. And are you still unemployed at your own desire?—No; I have been in town for the last fortnight seeking employment.

327. Have you frequently sought employment since May?—My friends have been seeking employment for me. I would have gone afloat if the Admiralty had had anything to give me.

328. Do you wish to make any further remarks to the Committee on the subject of the present inquiry?—The only thing, perhaps, that

I have

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I have to complain of so much in my own case is, the want of reward for my services. I was in the Baltic in the "Amphion," and I thought that for what I did I should have got something. I know in my own conscience that I have done my duty; but no one knows at all, except myself, what I have done; my friends do not know anything about it; and I remain a master; and there is the objection. I have here a letter from Captain Key, which I could show to the Committee if they wish it.

329. Is the letter to which you refer a private letter?—Yes. I am only speaking now as to my own services; and one would have thought that I might have received something for them. At the close of the Russian war, it was expected that some of the masters would have been made commanders, but there was nothing given to any of them.

[The Witness withdrew.

Adjourned to Wednesday, at 12 o'clock.

Wednesday, 19*th February* 1862.

PRESENT:

Rear-Admiral the Hon. C. G. J. B. Elliot, C.B.	Captain George Goldsmith, C.B.
Captain Washington, F.R.S.	Captain Charles Henry May.
	Commander Cornelius T. A. Noddall.

Rear-Admiral the Hon. CHARLES G. J. B. ELLIOT, C.B., in the Chair.

Captain JOHN FULFORD, R.N., Examined.

Captain *J. Fulford*, R.N.

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330. YOU are a captain in the Royal Navy?—Yes.

331. How many years' service have you had as first lieutenant, commander, and captain?—As first lieutenant, commander, and captain, I have been 15 years afloat.

332. In what ships as first lieutenant, commander, and captain?—In the "Orestes" and the "Talbot" I was first lieutenant; in the "President" and the "Benbow" I served as commander; and as captain in the "Conway," the "Hogue," and the "Ganges."

333. Are you aware of the discontent which exists among the masters in the Navy, from their feeling that they do not hold sufficient relative rank compared with other officers?—Yes; I am aware of that in some measure.

334. Do you think they have reasonable grounds for discontent?—I think they have.

335. Will you state to the Committee what they are?—I think with respect to rank they are inferior to all lieutenants, that is one point; and in some instances with respect to pay, and also with regard to their pensions, I understand that they are dissatisfied.

336. What remedies would you propose?—That is a most difficult question. I have never considered it till within the last two days. I have been so well suited with masters under me that I have never considered the question, and am not prepared to suggest any remedy.

337. Have you ever heard that the masters are discontented with their designation or title?—No, never.

338. With regard to rank, do you think you could give them a superior rank to lieutenants, and that they should still do the same work?—I think that is a most difficult point, and I do not see my way at all as to putting them over the lieutenants.

339. The masters appear to have advantages over their equals in the executive branch in pay and half-pay; do you think that those advantages have been given as a set-off against the limit placed upon their rank?—I should think that they ought to feel it so in some measure.

340. Do you think that it would be beneficial to Her Majesty's naval service that the class of masters, second masters, and masters' assistants should be done away with as a separate branch of the service?—No, I think not.

341. Have you turned that question over in your mind?—As I say, I have only done so within the last two days.

342. Have you found it general that the masters and second masters who have served with you, have been efficient in the performance of their duties?—Yes; I have been extremely fortunate in the service, both as chief executive officer of a ship and as commanding ships, in having very efficient men under me, who have not only been useful to me as executive officers, but also most serviceable when I have been in command; men who, if I could name them, I think now (it would be allowed), are amongst the most distinguished in their profession or rank; and they have always given me very valuable assistance, not only in their own immediate duty, but in every way in the ship.

343. Do you see any way in which these valuable men could be replaced by lieutenants or other officers in the executive, supposing the masters as a class to be done away with?—I think that it is a difficult thing to train lieutenants specially for the purpose, as they have other duties to attend to.

344. In the large ships in which you have served, the masters have probably been more experienced men than in the smaller ones?—Decidedly.

345. Supposing the lieutenants were given the masters' work to do, do you see how you could get

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get the experienced men in the larger ships?—They must be selected, of course, from the body of lieutenants for the special service, and trained in the smaller ships; and then when they come to have charge of a large ship, I do not see why they should not be able to do as well as masters, provided they look to that line specially as the one in which they must advance. But what I mean is, that, having other duties, such as gunnery and the various duties of a captain, to look to, they probably would not be so efficient as masters who look to that branch only as their profession in life.

346. They would naturally look forward, would they not, to becoming captains, and get at the head of the executive?—Yes; the moment a man is made a lieutenant he looks to be a commander in two years, and therefore they would be continually changing; of course we know that in effect he is not made commander so soon as that.

347. Would he look forward to that, even if he is a navigating officer?—Yes. Of course I presume that in such a plan they would not debar a man from the chances of promotion in the service just the same as he now has; but until some good plan of that sort were established or tried, I should certainly be sorry to see the class of masters abolished.

348. Supposing the class not to be abolished, do you imagine that there would be any difficulty in a master with the rank of commander, serving in a line-of-battle ship?—I think there would. I think that he would be constantly clashing with the lieutenants in the ship, which would be very distasteful to them generally as a body.

349. What has been the nature of the duties assigned to the second masters and masters' assistants on board the ships in which you have served?—As a rule, both the second masters and masters' assistants have had the charge of the lower decks in small ships, and the hold in large ships; but in the ships which I have commanded I have placed them on deck as much as I could. I think that is the faulty point in the training of those officers, and that they never learn their duty and responsibility until they get into small vessels; and of course they cannot be efficient until they have served some time in those vessels.

350. But the masters' assistants serve more on deck now than they did formerly, do they not?—I think they do. I may instance a case when I commanded the "Ganges;" on the second master leaving we received a second master from a ship that had been nearly all her commission in harbour. I, of course, put him on deck during the time he remained with us. He got a death vacancy, and is now the master in a small ship; but he had at that time had very little experience.

351. That was all his experience as second master?—He was three years in the "Corvette," and then he came to us as second master. We went to sea shortly after, and during the rest of the time he was with us I kept him on the forecastle while at sea; and he has served, I believe, a little since in a line-of-battle ship, and is now confirmed master.

352. Did the Committee rightly understand you to say that you considered that lieutenants could not do the duty now performed by masters?—I think it would be a slur upon them to say they could not. I do not think I said that. I think they could; in fact, I am certain they could.

353. What then would be your objection to their doing those duties?—I am afraid that, looking to promotion, they would not enter so thoroughly into the duties of that branch as masters do who make it their speciality through life; but that they could do it if they turned their minds thoroughly to it, I cannot doubt. But in practice what I should fear would be that the duty would not be done.

354. You think that the looking forward to promotion might find it draw them off from their duties as master?—Yes; that taken into consideration with the other duties which they would have to perform. I would instance gunnery especially, and the duties which fall upon a captain.

355. Have the second masters and masters' assistants any special training more than lieutenants have, to prepare them for being masters?—None. I should think their examination is nearly the same.

356. And I think you stated that the greater part of the second master's time is passed between decks?—I think as a rule it is generally so in the service; and that, as I have already expressed, I think is the faulty point in their training.

357. If the masters' class were retained, would you recommend that that should be altered entirely?—Most decidedly.

358. If the masters' class were retained, would you select masters' assistants from any other source than that from which they are now taken; for instance, would it be desirable to select for masters' assistants boys trained at Greenwich, Christ's Hospital, and other public schools of acknowledged standing?—I think it would.

359. Would you recommend that they should be educated on board the "Britannia," as well as the naval cadets?—I think that would be a good plan, and would ensure a better grounding in their education.

360. And that afterwards they should be kept on deck, and obliged to be on deck when going into harbour, or in any other circumstance when it is desirable that they should be there?—Exactly so. I think they are neglected too much in ships in that respect; that they are not sufficiently called upon deck at those special times of pilotage; and then probably their duty below is to attend to the cables, instead of learning what they might from the master on deck.

361. And then they are suddenly called upon to undertake most responsible duties, are they not?—Yes, in small vessels; and we are expected to place confidence in them; whereas they are only then perhaps learning their duty.

362. In a small vessel the lieutenants are quite on a par with the young masters, are they not, so far as a knowledge of their special branch of the service is concerned; that is to say, with regard to navigation and pilotage?—I do not think they are, in so far as they do not make it so much their study.

363. If I understand you rightly, young masters learn their special duties afterwards?—Yes, in many cases. I do not say that it is so in the whole service, but I think that is rather the tendency of the present system that we do not get in the small vessels men sufficiently qualified.

364. There are about 850 lieutenants and 350 masters

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masters, or about that proportion, in the Navy, are there not?—Yes.

365. Would it be desirable to select the men that you want to do the duty of masters out of the 850, rather than take them out of the 350?—I would certainly rather take them out of the 350 masters at present.

366. Are you acquainted with any foreign navies?—Not particularly. I have seen the French and American navies.

367. Are you aware how the French ships are navigated?—By a lieutenant, I believe.

368. And in the American navy also, are you aware what the practice is?—In the American navy I think it is the same as in the French. I do not know precisely how it is.

369. In short, are you aware whether in any other service, except the English, there is such a class as that of masters?—There is no such class, I believe.

370. Both you and I fully admit the valuable qualities of the masters as a class at present. Do you consider it desirable, looking forward to the general benefit of the service, that they should be continued as a special class or not?—I think they should. I do not see my way in any other direction. I do not see any plan that would be an improvement upon the present system in that respect.

371. Do you consider that the fact of the navigation being confined chiefly to the masters, renders the other officers in the service rather indifferent to it?—I think it does.

372. Is that a desirable state of things to continue?—No, certainly not.

373. At present, in the event of a ship losing her master, would there not be some little difficulty with regard to her navigation?—There might in small ships, but I think in a large ship there would not.

374. Would there always be some one of the officers found competent to take his place?—Quite so.

375. You would not throw the whole responsibility of the pilotage and navigation of a ship upon the captain?—Certainly not. I think that with the great and increasing responsibility of captains in the present day, they certainly should have somebody to assist them materially in that respect.

376. Do you consider that steam has simplified or rather added to the difficulties of navigation, looking to the whole of the circumstances of the case?—I think in the large ships; and with the increased size of the ships generally, certainly it has added to the difficulties.

377. And considering the greater speed at which they go also?—Yes.

378. At the same time steam under proper control will enable a ship, will it not, to get out of difficulties as she could not have done under sail?—Most decidedly; and in entering harbour it is most useful.

379. In the merchant service, in the large Australian clippers, the East India ships, and the Cunard steamers, the captain always navigates his own ship, does he not?—I believe so.

380. Do you see your way to remedying the grievances of the masters, without doing away with them as a separate class?—I must own that I hardly do.

381. Still, as matters at present stand, you think that they have grievances?—They certainly have grievances.

382. You are of opinion that there exists a necessity for having a particular officer to assist in navigating and piloting the ship?—Yes. I may add that I should be extremely sorry to see that valuable class of officers abolished without some method being well tried before they are so, because we never could recover them again if it failed.

383. You mentioned that the masters complain of a grievance with respect to their pay; to what did you refer?—I merely go from hearing them complain of it. I could not enter into detail.

384. But their pay now, as you are aware, is superior to that of other executive officers?—Yes. When I said "pay," perhaps I should have used the term "rewards." I mean what they have to look to after long and meritorious services. I also qualified it, I think, by saying "in some instances;" but I am not prepared with any detail on that point.

385. The relative position of the master has been altered lately in a certain degree, has it not?—I am not aware.

386. I mean their relative rank, compared with that of civilians in the Navy?—I believe it has; but that has taken place since I have left my command, and I have not entered into the question since I came ashore.

387. You are of opinion, are you not, that our ships could not get on well without masters, or officers in their place?—I think they could not.

388. Foreign ships (speaking principally of the American and French navies) do get on without the class of masters; do you think that it is due to the superior ability of the juniors or of the seniors?—I am not intimately enough acquainted with their system to say; but I think neither nation have so many ships afloat as we have, nor do I think they are nearly so much at sea. I think we see that in foreign stations, the French and Americans go from port to port, and remain much longer in harbour than our ships; they merely make passages.

389. What would be the principal objection to making masters senior to the junior lieutenant of a ship?—That the junior lieutenant is liable to be the commanding officer in the absence of the senior lieutenant.

390. Do not you think that on many occasions it would be desirable for the safety of the ship that the master should be the responsible officer in the absence of the senior officers, and not the junior lieutenant?—I never saw a case in which the junior officer did not take the advice of the master, although he was superior to him.

391. If a class of officers were selected out of the present executive officers, do not you think that a man holding the position, say of staff commander, could do the duties of a master in a line-of-battle ship, without clashing with the other officers?—I think there would be difficulties attending such an arrangement.

[The Witness withdrew.

JOHN SCOTT, Esq., R.N., Examined.

J. Scott, Esq., R. N.

392. WHAT is your rank and seniority in Her Majesty's Navy?—I was made master in July 1846.

393. Will you state shortly your length of service as second master in charge and as master, and also the names of the ships and the stations on

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on which you have served?—I was appointed second master to the "Thunder," surveying ship, in November 1837. I continued in that vessel in the West Indies until July 1841, when I was appointed acting master of that ship. I was confirmed in the rank of master in July 1846, and continued acting in her in the West Indies until August 1848. I was paid off from her in August 1848, and continued on half-pay until October 1850, when I was appointed to the "Encounter," on the Lisbon station, and I remained in her until the end of December 1852. I was appointed to the "Impérieuse" in January 1853, on the Home and on the Lisbon stations. In that ship I served in the Baltic, and afterwards went to the West Indies in the Central American squadron. I returned to England, and was paid off in February 1857. In May of that year I was appointed to the "Cyclops," and assisted in sounding the North Atlantic Ocean preparatory to the laying of the telegraph cable between Valentia and Newfoundland. I remained in the "Cyclops" until August of that year. My next ship was the "Euryalus," commissioned in February 1858. I served in her in the Mediterranean, and on the coast of Egypt through the Archipelago, and afterwards at the Cape of Good Hope, and was paid off from that ship on the 19th of November 1860, I think. On the 16th of January 1861, I was appointed as master of the "Indus," steam reserve ship at Devonport, in which I am at present serving.

394. The Committee are informed that discontent exists among the masters. Will you state what you believe to be the grounds of that discontent?—We feel that we have not had extended to us the benefits and privileges which have been granted to other classes of officers, of whom hitherto we have always taken precedence. That is one grievance.

395. Do you look upon that as the grievance which is chiefly felt?—Yes; I consider that a great grievance, certainly.

396. What classes of officers do you particularly refer to?—The officers of the civil class. The engineers have become senior to us; the engineer is the junior officer of the civil class who has been put above us. Indeed I might say for myself that some time back I found by mistake that I had saluted an officer to whom I had hitherto always considered the masters senior.

397. That is to say, there has been an advancement in the rank to the other classes, and not to yours?—Yes.

398. So that you feel yourself left behind?—Yes; I do feel that I have been degraded; I cannot help thinking so.

399. That feeling is chiefly with regard to your rank in comparison with the civilians?—Yes.

400. Is it entirely so?—Yes. I consider, according to our relative rank, that I am now junior to those officers. I would instance one case in which a master's cabin was about to be substituted for that of one of the civil class, because by the recent regulations those officers had become his senior.

401. Can you mention any other grievances?—I would submit that the responsibility of the master of the ship being second only to that of the captain's, in justice to him his position should be raised to the rank of a commander in order to prevent the possibility of a collision with the officer of the watch.

402. Do you think it would be for the benefit of the service that he should be senior to all lieutenants?—I think so.

403. Even the senior lieutenant?—Yes, according to his seniority.

404. Do you mean that the master should rank in seniority with the lieutenants according to the date of his commission, or that he should be superior to all the lieutenants?—I think he should rank with them according to seniority; after 15 years' service, that he should rank with the commander.

405. Do you think that that would work well in the ordinary routine of a ship?—I do.

406. Should he take the command of the ship before the lieutenant in the event of the captain's absence?—I would submit that he should not at all interfere with the command of the ship.

407. The duties of a master and a lieutenant are very different, are they not?—Yes.

408. Do you think you could increase the master's rank to that of commander without making it necessary that he should take command of the ship, or do other lieutenant's work, in the absence of the captain?—My object in proposing that the master should be raised to the rank of commander would be to prevent the possibility of collision with the officers of the watches. All communications should go direct to his captain. It is my belief that the service suffers much by the communication passing through a second hand to the captain.

409. As master, could you not always personally apply to the captain?—Yes. I have never found any difficulty in applying personally to the captain, but have found a difficulty where orders have had to pass through a second channel to the captain.

410. You mean that, with regard to the officers of the watch, the master could not give them orders?—Just so; he is unable to do so. Even if the ship were standing into danger, and the master sees it, and requests that the ship might be put about, the lieutenant could, if he pleased, say "No, I will not do it until I have communicated with the captain." If I came on deck I might find, perhaps, that the ship is suddenly coming into danger, such as rocks ahead or breakers in sight, and I might instantly order the helm to be put down; but the lieutenant has the power to say, "No, I will see my captain first." And as my responsibility is next to the captain's, I say it is not doing me justice. If I find the ship in danger I think I ought to have the power of putting the helm down; but we are unable to do this, under the present regulations, unless the officer on deck chooses to carry out our views.

411. In an instance such as you have now supposed, would not an officer of the watch risk his commission by not attending to your suggestions?—Yes, I should suppose he would.

412. In that case would it make much difference whether he received what you said as an order, or simply as your wish?—I should never, under the present circumstances, think of ordering a lieutenant or an officer of the watch to do that; but I merely bring it forward as an instance to show that he might refuse, if he pleased, until he had communicated with the captain. I have never been so circumstanced myself, but I mean that such a thing might very possibly happen.

413. You are now superior in rank to the sub-lieutenants, are you not?—Yes.

414. Would your conduct be different towards

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a sub-lieutenant who was officer of the watch, from what it would be towards a lieutenant?—Not in the least as an officer of the watch.

415. Does the difference of rank make any difference in that respect?—No, I think not. The mate is placed there as an officer of the watch, and the captain has deputed his authority to him.

416. I have in my hand a copy of a petition, dated the 29th of November 1858, presented to the Admiralty by a number of masters, to which your name amongst others is attached; did that petition set forth what you then considered to be the grievances of the masters (*handing the petition to the witness*)?—Yes, it did.

417. In the first part of that petition you state, "Your petitioners, who have been serving subsequently to the promulgation of Her Majesty's Order in Council of May 1846, have viewed with much concern the entire exclusion of their class from the promotion therein set forth as the reward for distinguished conduct, notwithstanding their having been officially mentioned, gazetted, and publicly thanked for services described as daring, gallant, and valuable;" to what do you refer?—No master has been rewarded in any way for distinguished conduct; no master has been promoted to the rank of commander for it.

418. You mean that the Order in Council has held out prospects of promotion for masters into the other, the executive branch?—Yes.

419. In your opinion, have such distinguished services been performed as to entitle them to this?—Yes, I think they have.

420. Can you mention any?—Yes. In one particular case, that of Mr. Dyer, at present serving as the master in command of the "Avon," at Devonport; and there have been many others whose services have been unrewarded.

421. What was the case of Mr. Dyer?—I believe it was the capture of an armed boat in China. It was much spoken of in the papers at the time. I forget the particulars, but we all thought that his conduct was so good that he should have received some mark of distinction and promotion.

422. Did he receive any superior appointment after he came home?—He has had a command given him since; but whether it was in consequence of that or not, I do not know.

423. A command is looked upon as an advancement to a certain extent, is it not?—Yes, it certainly is; but we should have thought that he might even have looked higher than that as a reward for conduct of that description.

424. In his case would it have been an advantage with regard to pay if he had been made a commander?—Yes. He was a young master, and no doubt it would have been an advantage to him; and besides that, it would have been a stimulus to others: but, as the case at present stands, we have no advancement.

425. Would it generally be more satisfactory to the masters to receive such advancement on to the other active list with the pay attached to that list, or an advancement of rank in the present master's list with the master's pay?—Yes; I should think that advancement of rank to that of commander, with the present pay, and the advantages which the masters have been led to expect according to the length of service, would be satisfactory.

426. They should still, in your opinion, keep to that particular branch?—It appears to me that all that would be necessary (speaking for myself), would be, that if a master had the rank of a commander given to him after 15 years, with all the advantages that he has in the service already, for length of service, his pay increasing according to the length of service, that it would meet all the requirements of our class. Of course the half-pay of a commander as at present is less than our half-pay, and so also his full-pay. The commander's rank ought not to interfere with our rate of pay, either for the full-pay or for the half-pay. I am quite sure that it would be entirely for the good of the service if the master's position were raised to the rank of commander; and that promotion need not interfere with the discipline of the ship, for already a master of eight years ranks with a lieutenant, but a master of 15 years does no more than just rank with a lieutenant, and then is subordinate to him.

427. Those officers would thus enjoy the advantages of progressive rank, and superior rates of pay, which are now granted as a set-off against the limit placed upon their rank, would they not?—Yes.

428. The next paragraph in the petition is this: "That in your Lordships' circular, March 3, 1855, certain rates of pay are set down for a master of the fleet, masters and second masters; but your petitioners would beg to observe that the first-named rank is not permanent, and is of rare occurrence, two masters of the fleet having alone been called into requisition for periods of a few months respectively, during the last 20 years, and only one officer having held the rank prior to the recent appointments to the Baltic fleet since the peace in 1814." Is it not the case, that the captain of a fleet, has an appointment of a similar kind, and not a permanent one?—Yes.

429. What, then, is the grievance there complained of?—That when such may have been the case, no master of the fleet has ever been appointed with him. There has been always an inspector of machinery, but no master of the fleet has ever been appointed since the Russian war (there was one then), and there has been no master of the Channel fleet, or the Mediterranean fleet.

430. Are you of opinion, that whenever there is a captain of the fleet, there should be a master of the fleet?—Yes.

431. Do you consider that the master of the fleet should be more of a permanent appointment than the captain of the fleet?—No; only that when a fleet is of such magnitude as to require a captain of the fleet, a master of the fleet would also be necessary. There was an inspector of machinery, and a captain of the fleet in the Baltic; and a master of the fleet has always accompanied the captain of the fleet whenever there has been one before.

432. At the time when this petition was presented, had there lately been any case of a fleet which had a captain of the fleet and a master of the fleet?—I am not aware that that was so. To be appointed master of a fleet, is an appointment that a master would feel proud of, and which he looks forward to as one mode of reward.

433. Still it is an appointment which is only necessary when you have a fleet together?—Just so.

434. When there is not a master of the fleet, the master of the flagship, to a certain extent,

does the duty of the master of the fleet, does he not?—Yes.

435. Since this petition has been presented, there has been an increase of pay to the masters of flagships, has there not?—Yes.

436, Can you state what that increase is?—From 2*s.* 6*d.* to 5*s.* a-day on foreign stations.

437. Another clause of that petition is, "That with respect to the improved rates of pay for the different classes from No. 1 to No. 5 inclusive, your petitioners are not allowed the benefit of any portion of their servitude as acting masters or second masters in their half-pay classification, and only three years of their acting or second masters' time (during which they must have been qualified for masters), for full-pay classification, although many of your petitioners have been employed on foreign stations, for periods varying from five to ten years in those ranks." There has been some alteration since that, has there not?—Yes; all our acting time counts towards full and half pay, when confirmed for a master.

438. That, I presume, removed the chief source of grievance there referred to?—Yes; I benefited by it myself; I was appointed an acting master in 1841, and continued acting for five years; and that places me in the same position as if I had been promoted in 1841.

439. The next clause is, "That the masters employed as chief officers of the coast guard, although serving on full-pay, are not allowed the benefit of their previous service afloat, nor to enjoy the rates of pay specified in the circular referred to." What is the case relative to the masters in the coast guard now?—I did hear that they had very recently been allowed some portion of their time; but hitherto, the master's time did not count at all for half-pay when serving on coast guard. I think, recently, there has been some of the time allowed, but I do not know that to be the case myself.

440. Does that clause refer to the rates of pay they received for the time they have been on Coast Guard service?—They receive no increase of pay for the time served in the Coast Guard service.

441. Is their any complaint made with regard to their pay whilst they are on the Coast Guard service?—I am not conversant with that subject.

442. The next clause of the petition is, "That the master attendants of Her Majesty's dock and victualling yards, although placed in a position of importance, trust, and responsibility, second only to that of the admiral or captain superintendent (whose authority in his absence devolves upon the master attendant), are on a scale of salary generally, one-third or one-fourth inferior to that provided for other officers of these establishments, while they are retired at the age of 60, or from five to ten years prior to the civil officers, and upon an allowance (one shilling a day) which bears a very small proportion to that allotted to the other principal officers." The case of those officers has been altered, has it not, since the date of that petition?—Yes; there has been an increase of full-pay, and half-pay, and retirement.

443. The next clause is, "That your petitioners, both on service and socially, and especially when co-operating with foreign officers, experience considerable embarrassment from the want of relative rank with other executive officers of the same service, and also from their ambiguous title. The medical officers of the navy are in the enjoyment of certain definite gradations of rank, to which they receive substantive promotion for meritorious service, which rank is available, whether at sea or in hospitals, on other Government establishments on shore, and renders them eligible for military distinctions conferred by the Sovereign. But your petitioners feel that until they have passed the age of 55 or 60, they can enjoy no accession of rank, relative or direct, and are excluded from the honours attendant upon good service, and that the advancement open to them at that late period of life is inseparable from retirement." That to a certain extent, has been altered, has it not, by the rank and position of the master attendants as they now stand?—Yes; as they now stand, that would be so.

444. In other respects, are those matters now felt as grievances by the masters?—Yes, very much so; in fact, we are worse off with respect to our position than we were at that time, as we have been made junior to all the other class of officers with whom we had taken rank before; and I suppose in a foreign service, we should be considered as junior officers, and not worthy of the consideration that an officer should have, holding the rank of a ward-room officer. I might instance the case of the officer who was captured on board the "Tiger."

445. Do you know of any other cases?—No; I could only mention that one in particular.

446. With regard to the relative rank of masters and civilians, do you not consider the advantages lately given in point of rank to the masters' class, in the case of master-attendants superior to the advantages of the civilians?—No.

447. What is the comparative rank of the civilians and retired masters?—A master of eight years ranks with a major in the army, and an engineer of eight years ranks with a major in the army, and whilst the civil classes of 15 years rank with lieutenant-colonels, the master of 15 years has no advancement until he becomes a master-attendant.

448. With what rank do master-attendants retire?—The master-attendants rank with commanders, but they retire with the rank of captain.

449. Do you believe that the masters are content with their improved rates of pay and half-pay?—With the rate of half-pay I think they are generally so, but not with the rate of full-pay, I have heard numerous complaints about the rates of full-pay, but not so as to half-pay.

450. Can you state what they complain of in that respect; do you mean the pay generally to old and young, or simply as juniors?—I have heard complaints of the full pay not being sufficient; and our incomes certainly have been reduced. So far as the amount of pilotage which we have been in the habit of receiving, it has been reduced to one-half, which of course lessens our income.

451. With regard to pay, your advantage is considerable, is it not, over the other branch of the executive of similar rank,—lieutenants and so on?—It is greater than the lieutenant's pay, certainly; but we get it after a very long service, so that on that account it may be considered not superior.

452. Do you think that it would be beneficial to Her Majesty's naval service that the class of master, second master, and master's assistant

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should be done away with as a separate branch of the service?—Yes; but would not recommend it.

453. To whom then should the special duties now performed by the masters be entrusted?—To a navigating lieutenant.

454. Would you have a lieutenant selected by the captain of the ship, or by the Admiralty?—By the captain of the ship.

455. Would you require him to pass any special examination for the work?—Yes. He should be trained for it in the same manner as the masters have been trained in the science of navigation, nautical astronomy, and pilotage.

456. A young lieutenant and a young master would start pretty nearly fair, with regard to experience, would they not?—Yes, they would.

457. Therefore, is there any reason why a lieutenant should not be trained up to do the present duties of the master?—No; I see no reason why he should not.

458. At present, although the master of a small ship in general has very slight experience, he has generally great experience by the time he is appointed to a line-of-battle ship or a large ship?—Yes; he has had the opportunity of gaining experience.

459. How would you ensure a lieutenant who is appointed to do the duty of a large ship having such experience?—By holding out inducements to him to train himself for such a duty.

460. Would you restrict him to that particular branch?—I would make him the navigating officer, and advance him in the service as if he came through the different grades. I would advance him on through the different grades in the service, although he may be a navigating officer.

461. Would you insist on his always being a navigating officer?—Yes, I think he should be so.

462. Do you think that, without being kept to that branch, he could gain the necessary experience for his position as master of a large ship?—It would be necessary, in order that he would gain the requisite experience, to keep him as a navigating officer.

463. To a great extent it would still be a separate branch?—Yes. Instead of calling him a master he would be a navigating lieutenant, and a navigating commander, and afterwards even a navigating captain.

464. Do you think that a zealous and ambitious lieutenant would be content to look to that branch rather than to the other, as his object in life?—As at present constituted, I do not think he would.

465. If, as you propose, the promotion were in that particular branch, do you think that the best officers would take to the navigating branch, or to the other branch?—Yes; I believe there are many men that would take to the navigation of the ship under any other title than that of master of the ship.

466. In asking you the question, whether you thought it desirable that the class of master, second master, and master's assistant should be done away with as a separate branch of the service, it had reference to the system, and not to the name of master. Do you think, supposing the name were altered, that the system should still be altered?—It appears to me that if the master were promoted to the rank of commander, we should have all that is necessary, so that he may progress in rank according to the length of his service; for instance, a man of 15 years' standing to rank with a commander.

467. I understand that you do not object to there being a navigating branch of the service?—No, certainly not; and if all lieutenants were expected to be able to navigate the ship, you would have a greater number of men to select from as navigating officers.

468. Still, you say, a lieutenant who volunteered or was appointed to that work should keep to that particular duty?—Yes; he would make the best navigator in the end, which would be for the good of the service.

469. Of course, it is the good of the service that we are particularly looking to?—Yes; and I think, being a master myself, that it would be also for the good of the service, for you would have a greater number of men who could navigate.

470. Do you wish to make any further remarks on the subject upon which you have been examined?—Yes. I beg to submit some suggestions which I consider would remedy the grievances of which the masters complain:—"1st. Masters of 15 years' standing to be placed on an equal footing with the surgeons. 2d. Voluntary retirement after 25 years' full-pay service (irrespective of age) with the rank of captain or commander, according to present regulations; this period to include the whole of their second masters' time after passing their examination at the Trinity House for second master. 3d. Compulsory retirement at the age of 60. 4th. Masters in command of yachts or store ships to be superseded after being five years in command. 5th. Masters of the fleet to be appointed to the principal stations. 6th. No master to be ordered to take charge of a watch, unless under special circumstances, and the same to be reported to their Lordships at the earliest opportunity. 7th. Where possible, to have a convenient chart room to work the reckoning, consult charts, &c. &c., other than the wardroom table or captain's cabin. 8th. One year in three served in the Coast Guard to be allowed to reckon for retirement or increased half-pay, the same as lieutenants. 9th. That the master attendants do not hold their appointments longer than 10 years, including assistant master attendants' time; and to be retired at the age of 60, should they not have served the above period. 10th. That the remuneration for pilotage being almost totally abolished by the new regulations, I would submit that it be altogether disallowed, and that the stores now in charge of the boatswain and carpenter be placed, as formerly, wholly in charge of the master, with the allowance as specified in the instructions. 11th. That the master's responsibilities being second only to that of the captain of the ship, I would submit that his position be raised to the rank of commander, to prevent the possibility of collisions with the officer of the watch."

471. In the 10th paragraph you recommend "that the stores now in charge of the boatswain and carpenter be placed, as formerly, wholly in charge of the master, with the allowance as specified in the instructions." Do you look upon the supervision of stores as an important part of the master's duties?—Yes; and I have always closed and supervised every ship's accounts that I have served in since I have been in the service, although the stores were not in my charge.

472. Supposing there were no masters to perform

form that duty, some trustworthy person would have to be appointed, would there not?—Yes.

473. I think you have stated that you were in the "Impérieuse" in the Baltic, in the in-shore squadron, blockading very closely?—Yes.

474. Was the navigation there as intricate as in any other part of the world?—Yes, it was.

475. Generally in the Baltic is the navigation very intricate?—Yes.

476. You were afterwards in the "Euryalus," were you not?—Yes, I was.

477. You were serving in her, were you not, when Prince Alfred visited Alexandria, the coast of Syria, the Archipelago, and afterwards the Cape of Good Hope?—Yes.

478. With the experience that you have had as a master, do you consider that second masters have the best education and training to fit them for the very important position of master of a ship?—No, I do not.

479. Could you point out the deficiencies, and how you would propose to remedy them?—I do not think they have sufficient education, from the fact that, generally speaking, their duties are confined to the lower deck and hold, so that they have not, as a rule, the opportunity of learning their duties, that they should have given them, in some ships.

480. And yet, although a second master has passed his time between decks, or in the holds, when he is promoted to the rank of master, and appointed to a small ship, he is expected to take upon himself the whole responsibility of navigating that ship, is he not?—He is.

481. Is it within your knowledge that the young commanders and captains now generally navigate the ships which they command?—I am not aware. I have not been in a small ship of late years.

482. Do you not consider it desirable that the captain of a ship should be able to navigate the ship?—Yes.

483. In the merchant service, what is the practice in the Australian clippers, the East Indian ships, and the Cunard steamers?—Who navigates the ship?—The captain.

484. Have the captains of those ships, the passenger ships particularly, many other duties to attend to?—Yes; the government of the crew and passengers.

485. Do you see any reason why the captain of a ship should not navigate his own ship, with the assistance of a navigating lieutenant?—No.

486. Do you consider that having a separate class of masters encourages indifference to navigation among the lieutenants generally?—Yes.

487. So far, then, do you consider it prejudicial to the general service?—I do not know that it is so.

488. Supposing the master class to be retained as a separate class, do you think that it would be desirable that the masters' assistants should be selected from Greenwich School, Christ's Hospital, or any other public school of note?—Having been educated myself at Greenwich School, I am certainly in favour of selecting them from that school, as the school was formerly constituted; but I am not familiar with its working at present, so as to enable me to say anything about the boys now educated there.

489. Have you not met with any master's assistants in the Navy lately who have come from Greenwich school?—Yes.

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490. Are they not generally the most intelligent boys that we have?—They are.

491. And the most likely to make good masters?—Yes.

492. Do you attribute much benefit to the Trinity House examination for channel pilotage?—Yes.

493. That only extends to channel pilotage, I believe?—That is all.

494. Do you think that it would be desirable that a competent board of examiners should examine a master in pilotage for different parts of the world?—Yes; I think it would be beneficial to the service to have such an examination.

495. You have proposed the establishment of a chart room on board ship; at present, have the officers as well as the masters any opportunities of consulting the charts?—Yes, they have; we generally have a chart up in the ward room, in order that they may all have access to it.

496. What sort of a chart do you hang up in the ward room?—For instance, an index sheet.

497. But an index sheet is very small, is it not?—Yes, it is.

498. What was your object in having a chart-room; was it to lay the charts there, so that every officer might go in at any moment and see the position of the ship; was that part of your object, or not?—My object in having a chart-room is, that there may be a place to retire to, to lay off the ship's position and to work the reckoning, and also a place to set down the chart boxes in; for frequently there is no place assigned to them, except perhaps in the bread-room and other inconvenient places; and I have been occasionally as long as an hour, or an hour and a half, in finding a chart that I wanted.

499. Perhaps that is because the chart box is inconveniently large; is that so?—No. I should think there might be found a roomy place which should be set apart for that purpose.

500. Are not the chart boxes too large?—I do not think they are.

501. Would it be an advantage if they were divided into half, so that you might take half the charts of a station at once, as you can never go very rapidly from one end of a station to another; or would that be considered more inconvenient?—No. I think it would be convenient if the boxes were made smaller.

502. Do you think that it would be desirable to have under the half deck of the ship a moveable table, on which a chart should always be spread, except when exercising the guns or performing other duties which would prevent it, so that every officer in the ship might have access to it at all times?—Yes, that would be a convenience.

503. Would it be too much to expect the officer of the watch, or the mate of the watch, to mark up the ship's position at the end of every watch?—No, I think not.

504. Do you think that that would be desirable or not; or that he should do it, say three times in the 24 hours?—I hardly think that it would be necessary. The master renders the ship's account at eight o'clock in the morning, at noon, and usually at 8 p.m.

505. Do you think that officers on board ship generally are sufficiently familiar with charts as to be able to lay off a ship's position?—No, I do not think they are, generally speaking; but there are many who can do it.

506. Supposing, as you have suggested, that a navigating

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a navigating class of lieutenants were established, would there be anything in the lieutenant's duty as a navigator to prevent his acquiring a knowledge of all his other duties?—No.

507. Would he be a more competent commander and captain of a ship with that additional knowledge?—Decidedly he would.

508. Is that the plan which you would suggest for remedying the grievances of the masters; namely, the doing away with the class, and establishing a class of navigating lieutenants?—I have not suggested that I would do away with the class.

509. Have you well considered the question whether it would be beneficial for the service that all the officers should be induced to attend to the navigation of the ship?—I think it would.

510. Do you give that to the Committee as your deliberate opinion?—Yes; I think it would be beneficial to the service that every officer should know how to navigate the ship.

511. Do you know any better means of doing that than by abolishing the class of masters as a class?—By raising the position of the master to the rank of commander.

512. Would raising the position of the master tend to make the other officers acquire a knowledge of navigation?—No, I suppose it would not.

513. What would you institute in lieu of the masters, if you did away with the class; the Committee must understand that?—I have no desire to do away with the class; but if the master class is done away with, I would have a navigating lieutenant.

514. Would you wish the navigating lieutenant eventually to rise to the command of a ship?—Yes.

515. Would you propose to make any alteration in the pay of those officers if they became navigating officers, seeing that the masters now receive more pay than the lieutenants?—Yes.

516. You would, therefore, give them an increase of rank as well as an increase of pay?—Yes, according to the length of service.

517. You have stated that you do not approve of the present education of second masters and masters' assistants, on account of their being confined too much between decks. Do you think the second masters and junior masters of the present day are as good practical seamen and navigators as they were?—No, I do not think they can be so.

518. To what do you attribute this falling off?—To the want of opportunity for learning their duties on the upper deck. Here I would beg leave to make exceptions, by saying that every captain with whom I have had the pleasure of serving has always given every facility for those officers to learn their duties.

519. Would you place any limit to the number of sailing lieutenants or commanders that might arrive at that rank?—No, I would not place any limit to it, so that every officer should qualify himself as a navigating officer.

520. And, according to your suggestion, the superior rank of captain in command of a ship would be obtained equally by the present lieutenants and commanders, or by the sailing lieutenants and commanders?—Yes.

521. Do you think it would be desirable that the masters' assistants should be educated with the cadets on board the "Britannia"?—Yes.

522. You propose, do you not, that the masters should assume the title of commander?—Yes.

523. At what period of service?—After 15 years.

524. Do you mean 15 years altogether of master's and second master's time?—Yes.

525. Do you consider that that would be just to the lieutenants?—Yes, I should not consider it unjust.

526. Supposing that suggestion to be adopted, and that they assume the title of commander after 15 years' service, would you have them retain the position of master, and be called master previous to that promotion?—Yes.

527. And then you would promote them to the rank of commander?—Yes, and call them navigating commanders.

528. You stated, did you not, that you were of opinion that the master should take the command of the ship also?—No; I meant the navigating officer, who, after serving in the various grades, would become the captain of the ship. Any rank given to the master would not at all interfere with the discipline of the ship, or with the command of the vessel.

529. In the petition to the Admiralty, which you signed, one of the grievances mentioned is, that no master of the fleet has been appointed?—Yes.

530. As the work was got through without a master of the fleet, do you not consider that that would only have been a good berth for an old master?—Yes, but not appointing a master of the fleet, gave extra duty to the master of the flagship, because he had to perform his own duty and that of the master of the fleet.

531. Now he is getting extra pay, is he not?—Yes; he is getting extra pay on foreign service.

532. Not on the home stations?—No, except in the flag ships.

533. Another grievance was that none of the masters had ever received any military distinction. I conclude that you allude to the fact that no master had ever been made a C. B.?—They have not.

434. That is what you allude to, is it not?—No, I do not particularly allude to that.

535. Is that not alluded to in the petition which you signed?—That was one of the things mentioned there.

536. Did you ever know a commander to be made a C. B.?—I do not know one.

537. In the list of masters' grievances, you point out the want of a chart room, and a place to work the ship's reckoning in. Do you not think that the master having the second best cabin in a ship, one equal to the commander's, has a sufficiently convenient place to work the ship's reckoning in given to him for that purpose?—In a line-of-battle-ship he is a little better off than in the smaller vessels. In the smaller vessels he has no place except the captain's cabin to go to, or the ward-room table.

538. Where would you put such a room in the smaller vessels?—The size of the cabin might be increased in a small vessel to afford a convenience of that kind.

539. Another of the suggestions that you have made, is that a master should never be placed in charge of a watch. Have not the masters in the smaller vessels, on their appointment, very little experience as seamen?—That may be so, but they

require all their powers to look after the navigation of the ship.

540. Do you consider that in navigating a ship in the open ocean, it is one man's occupation to work that ship's reckoning daily, and to do nothing else?—If you place the master as an officer of the watch, he cannot attend to that duty and his own; he cannot do both properly; he must neglect one to attend to the other.

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541–2. Then, briefly, what particular advantage would accrue to the service from doing away with the masters' class, as I understood you to recommend that it should be done away with?—I said that the service might be carried out equally well by the navigating lieutenant, but I did not recommend that the class of masters should be done away with.

[The Witness withdrew.

WILLIAM S. LUKE, Esq., R.N., Examined.

W. S. Luke, Esq., R.N.

543. WHAT is your rank and seniority in Her Majesty's Navy, and what is your age?—I am 41 years of age, and my seniority as a master is 1847.

544. Will you state shortly your length of service as second master in charge, and master, and also the names of the stations on which you have served?—I never served as second master in charge. I went in the "Winchester," to the Cape of Good Hope, in 1842, as second master; and after serving three years, was appointed acting master of the "Helena," in the Mozambique Channel, for two years. Then came to England, and was appointed shortly afterwards acting master of the "Fly," and sailed for New Zealand on a voyage round the world, and was promoted immediately after the ship's leaving England. I was four years in the "Fly." Then came home and passed for a line-of-battle-ship; and served three years and ten months in the West Indies, in the "Buzzard" steam sloop. Then I came home, and went to the Baltic and joined the "Euryalus" frigate. Remained in the "Euryalus" more than 12 months, when she was paid off; and then went in the "Boscawen" to the Cape, and remained three years and a half. My last ship was the "Marlborough," in the Mediterranean.

545. We are informed that discontent exists amongst the masters in Her Majesty's Navy; will you state what you believe to be the general grounds of that discontent?—I believe the general ground of that discontent is that they are ignored entirely, both on board in their duty, and afterwards, when they get on shore, they are scarcely recognised, and they are not known as officers in the Navy by their position.

546 What do you mean when you say that they are "ignored?"—On board a ship the master positively has no position. If a captain chooses to protect a master, he can do his duty, no doubt, effectually; but unless the captain chooses to protect the master—(and many captains have different views as to what a master's duties are)—it is very irksome, and next to impossible, for a master to do his duty as he ought to do it.

547. In that respect has there been any change since you have been at sea?—I think there has. There is gradually creeping into the service a feeling that the officers can do without a master. Every day I see more and more that all classes of officers, except the older ones, are anxious that masters should be done away with. The older officers feel that they have never anticipated the doing away with the masters; but I think that the feeling amongst the commanders, the lieutenants, and the younger officers is, that they would rather see the master's class done away with; that has been my experience lately.

548. Have you had personal experience of your duties as master clashing with those of the lieutenant?—Constantly. I scarcely know how a master can get on without clashing some time or other with the lieutenants. The most painful part of a master's position is that in which he is placed with reference to officers, who are so many years younger than himself, and have had so much less experience.

549. Do you think then that there has been any change in that respect of late years?—Yes. I think a change is creeping in, and that the other officers begin to see and to feel, and to acknowledge to themselves, that the masters are in an improper position. In fact, within the last two years, lieutenants as well as other officers have said to me, more than once, "I wish I could do the duty of a master; but I should not like to be a master."

550. What did they mean by that?—I think that the lieutenant to whom I now more particularly refer felt, and that many of them do feel at the present moment, that the duties of a master are never attended to by them, and they feel that they have neglected a very serious part of their profession, and have had no means of acquiring a knowledge of it. They regret this as they get older and more experienced men; but though they would like to know the duties of a master, they would not like to be in the position of a master.

551. Can you explain why there is, as I understand you to say, more clashing at present than there was formerly?—I do not know that there is more clashing than there was a few years ago. I think there has been for many years clashing between the masters and some of those officers who have studied at college, and have come out quite qualified to do all the duties of a master. The officers who have given attention to that branch of the profession feel so much more independent of the master than officers did a few years ago, who never went to college, or attempted to work anything at navigation after they had passed, and who were consequently entirely dependent upon the master. At the present day all of those men who have occupied their spare time in study, and have embraced the advantages of college, when they go to sea, either as commander or as lieutenant of a ship, are very much more independent than the lieutenants were a few years ago; they are able themselves to do any of the duties of a master.

552. When you speak of their being able to do the duties of a master you refer more particularly to the navigation, do you not?—Yes; I refer more particularly to the navigation and to the practical part of a master's duty, and not merely to their being able to get a set of sights and work them, because all officers almost are competent

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to do that; but I mean that in the practical part of our duties they are actually taking advantage of their time and opportunities to do this and other things, and they make themselves acquainted with the harbours and those sort of things which they take the trouble to study at college, and with which they still occupy their minds to some extent. But there is also another thing that I could mention. I think that since a double set of charts has been supplied to a ship they have taken more interest in the study of them than they did some years ago.

553. Still, although those officers, when they come from the college, have acquired a theoretical knowledge of navigation, yet they have not had an opportunity of acquiring the right practice?—Just so. The theoretical knowledge is unfortunately almost entirely given to officers who do not apply it to practice. I applied myself to go to college some years ago for the sake of knowing steam. I had been seven years master of sailing vessels, and I knew nothing of steam; and when I came home, and found that there was no chance of my being immediately employed, I asked to be allowed an opportunity of learning steam, but I was informed that the Admiralty did not wish the masters to be educated men, but good working practical men.

554. The theoretical part of navigation is easily acquired, is it not?—A very great deal must depend upon the opportunities which officers have of acquiring it. I should think that almost all the officers now in the Navy who choose to do so have opportunities of acquiring the theoretical part up to a certain extent; but after they became lieutenants, as now they frequently do at 20 years of age, they have no means ever afterwards of getting any superior information to that which they have already obtained, because all have been educated alike almost; and with respect to masters, we have never had any means whatever since I have been in the service of improving our education. I came to sea at 12½ years of age, and I have never had one day's college instruction or from the service in my life. When we come to England we have no means of getting information. Sometimes we are as many as six or seven months on half-pay, but we have no means of going to the college or anywhere else to improve ourselves so as to keep pace with the times.

555. You think that the education of the young masters' assistants is at fault?—I think it is. Not only is the education at fault, but I think they are placed at a disadvantage from the beginning, from the very moment they enter the service. A short time ago, whilst the "Marlborough" was fitting out at Portsmouth, I saw a good deal of the young officers who came down to join. A great many of the young masters' assistants were sent to us, and it was in some instances lamentable to find that the boys had been almost entirely neglected. Though the "Britannia" has all kinds of educational advantages, both with regard to practical instruction in seamanship and instruction in every way, those boys were never allowed to go on board, nor to receive any benefit from her. They were sometimes sent out in a training brig for the practical part of their duty, and then afterwards they went on board the "Victory," and there they remained. They seemed to be thrown almost upon the world, and nobody took any interest in them. But that is not the worst part of it; those boys felt in many instances that they were in an inferior position, and that they were differently treated from the young cadets. There was one boy in particular who had a brother a naval cadet, and he was very much hurt by it. Indeed, they have spoken to me about it on more than one occasion.

556. Those boys' parents, of course, knew the position in which they were placing their sons, did they not?—I suppose so.

557. Can you state in what position in life the father of those two boys that you refer to was?—The father of the boy I was immediately speaking of was a lieutenant in the Navy; and it is well known that the naval officers with families have not the means given them by the service to enable them to give their children a suitable education, and put them out fairly in life; and if they are put into the service the service does not assist them; they must take what they can get for them. I have seen many boys ill educated put into the service because their parents had not been able to educate them better.

558. The masters' assistants being paid better than the cadets and midshipmen, I suppose is regarded as arising from that very cause; that is to say, because their fathers are poor men?—I suppose so; they are the sons of the poorer men in many instances. In some instances that have come under my notice I think that has been almost abused. It is really lamentable to see the poor boys come into the service. I may state that the other day, in the "Marlborough," when we went out we had several of these youngsters on board; and by way of giving them confidence and so on, I sent for them, and told them to come to me in any difficulties and I would help them. They were on board the vessel about three weeks; and when we went to Malta, and the signal was made to discharge those boys, to the different ships, they were quite distressed. Some of them, two in particular, came to me, and said that they had not a half-penny in their pockets. I asked them, "What have you done with your pay, because you had some advanced pay the other day?" One of them said, "It was only so much;" and they accounted for it within a few shillings. I then said, "Did you get nothing from your "friends?" and they said, "Nothing whatever." One boy's father was a corporal of marines, and the other boy's father held some inferior situation in the dockyard at Woolwich. I do not know what their associations were before they went to Greenwich School; but certainly they were thrown into the society of a class of young gentlemen on board ship with whom they could never have been before, and they had no one to look to, and no hope of advancement, except what they could pick up in the service.

559. Were those Greenwich Hospital boys who got into the naval service on account of their passing out well?—Yes. What I would chiefly ask would be that there should be some sort of protection formed for those boys when they are sent down to a ship. One can imagine the state of a boy fresh from Greenwich let loose from being tied up in school for three or four years, being sent down to Portsmouth with nobody to take care of him.

560. You are now speaking of boys who have been well-educated at Greenwich School; it is held out as a premium, is it not, that the boys who pass best may enter the Navy?—I believe it is.

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561. In general, have you found the Greenwich Hospital boys form good masters' assistants?—Yes, I think, in general; at all events, they are good mathematicians and good navigators, but I think the other part of their education, generally speaking, has been much neglected.

562. You think that they are treated in the light of a lower class?—No; I think there are a great many of them sons of naval officers, but they go there very young, and their education is of a peculiar kind, adapting them for mathematics and navigation; but very little attention is paid to the more serious part of their education. Generally speaking, they are not so good toned boys as those who come from other schools. The Bluecoat School boys are a better style than those that come from Greenwich.

563. In general are not the Greenwich Hospital boys and the New Cross boys amongst the best of the masters' assistants that you meet with in the service?—I think they are. I think they are almost the only boys that enter as masters' assistants now. You seldom see any others.

564. Do you think that those who enter from the merchant service generally turn out well?—I have not experienced for several years any entry as masters' assistant from the merchant service. As second master they entered lately very commonly from the merchant service; but as masters' assistant I have not seen any for some years.

565. What is your opinion of the second masters who enter from the merchant service?—I think they have not succeeded at all. I think they are the worst class of men who ever came on board ship; they were generally men who did not succeed in their own service, and they came to the navy as a last resource; nevertheless advantages were held out to them even greater than to those officers who were brought from our own service. One man who entered in a ship in which I was, was nearly 40 years of age when he entered as second master.

566. That was the time, was it not, when there was a great increase to the number employed?—Yes; it was just after the Russian war.

567. Had that man entered during the Russian war?—No; his first ship was after we came home, when we were going to the West Indies again at the close of the war, that he entered.

568. With regard to the education of the masters' assistants on board the ship, could you suggest any improvements?—I think it would be an improvement if the masters' assistants on board a ship were put more under the control of the master (and the second master also) at present; though they are under the master, the second masters and masters' assistants have nothing to do with the navigation of the ship except in a very few instances, neither is it considered that the master has any right or authority to make these boys do it. In fact, he has no power to do it, and it entirely depends upon the commanding officer whether he chooses to let a master have direct power over those boys or not. I would mention a circumstance that occurred the other day. Sir William Martin asked me what kind of men our second masters were. He said, "I want to know what kind of sailors they are?" I said, "I have never seen their faces on deck." The admiral immediately ordered that they should be put to keep the regular watch on deck as mates of the forecastle.

569. In which part of the ship have you seen the masters' assistants perform their duty lately?—Of course I can judge chiefly from the ships which I have been in. I always make them take turns where there are more than one; but there have been so few lately that we have very seldom had more than one on in a ship; but I always make one come with me, and do every duty that a master has to do. He does the whole of the duties that I have to do myself, and it is referred to me to see that they are correctly done. I make him begin by getting up in the morning and getting the star observations, and afterwards he goes through the whole of the duty of the master; but I do not know that that is the case in every ship. I have no doubt that masters would do a great deal more for them, and have a great deal more care for them, if they were entirely under their control; but the executive officers do not acknowledge that the masters have the control and direction of the assistant master and second master.

570. When you say "control," to what do you refer?—I mean nominating them to their particular duties.

571. How would you wish the master to nominate them for their particular duties?—I would wish that the staff should be much more under the directions of the master, and that the whole of the observations necessary for conducting the ship should be done by every one of them, and not by the master alone. If he wants even time taken by them, I know that in some ships it is difficult to get the master's assistant to do it for him; he is employed elsewhere; and in most ships the master's assistant and the second master are employed on the lower decks and other parts of the ship. Those young men who are being brought up for the duties of master, I think, should do the whole of the duties of a master of a ship every day of their lives.

572. In the ships in which you have last served, have the master's assistants generally kept watch, or had the charge of the decks, or performed other duties below?—During the short time I was in the "Marlborough," we had two masters' assistants, one of whom was with me, and the other kept watch. In the "Boscawen" it fluctuated; sometimes we had not a second master, and our master's assistant was acting as master and doing the duties of master of a ship.

573. Do you not think that it is much more a practice than it was formerly for the master's assistants to keep watch?—I think it is more general since the order came out, but I think they have benefitted very little by the recent order, as far as making them sailors goes. They have lost many opportunities which they used to have, because of the number of paddle-wheel steamers that have been introduced within the last few years; formerly they were employed in brigs, in which, being short officered, they had charge of the watch, and they were then taught to be sailors; but now, in the days of paddle-wheel steamers, the masters' assistants serving in them have but few opportunities of learning to be good sailors. And with regard to the present class of vessels, the sailing and screw ships are of such a size that there is a sufficient number of officers on board, so that it is not likely that a masters' assistant would be wanted over a watch, and consequently

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he has very little means of acquiring experience. I think it is next to impossible by the present system, they being juniors, to give them opportunities of ever learning to become sailors.

574. May you not say the same with regard to the midshipmen and the executives of that branch?—I think not, because a midshipman, in the first place, is at school till he is 15; then when he comes on board a ship, he generally has charge of a boat, which you will seldom find a master's assistant have; at 19 he passes as a lieutenant; and as sub-lieutenant he frequently has charge of the watch; whereas the second master does not pass for the position of second master till he is 21, and then it is very rare, comparatively, that he has the charge of the watch given to him; whereas an officer passes for a lieuteuant at 19, and becomes a lieutenant at 21, whilst a second master seldom becomes a master till he is 27.

575. Do you say that midshipmen join at 15?—They are at school till 15.

576. At what age do the masters' assistants join the service?—They are about the same age when they come in; sometimes, perhaps, they may be rather less, from 13 to 15; it depends upon the time when they enter the school. There have been so very few in the service till lately, that I can scarcely say.

577. Have you not seen masters' assistants in charge of boats like midshipmen?—Very rarely.

578. In other respects would not a midshipman and a master's assistant, who have joined at the same age, have equal advantages, so far as learning their seamanship goes?—I think they have scarcely the same advantages. I think, if there is any preference given, it would be given to a midshipman at all times.

579. Have you not of late years seen master's assistants in the tops?—Not so often as the others are there.

580. They are equally under the instruction of the naval instructor, are they not?—Yes, I think they are equally under the instruction of the naval instructor, that is to say, for navigation and mathematics; but of course they have, before their entry into the service, lost the benefit of two years in the school-ship. The midshipmen who enter the service, immediately go to the "Britannia," and have the benefit of the education there for more than one year. And when the masters' assistants come to England again, they lose the advantage of the college, which the others have before they pass, as they are not allowed to go to college.

581. Are you sure that they are not allowed to go to the college?—I think so; there are instances of two or three who have been to college, but they are so very rare, that I scarcely think they do so generally.

582. You think that they are differently treated from midshipmen in respect of their not having the advantage of going to the college?—In not having the early advantage of such teaching as is afforded in the "Britannia," and of afterwards going to college.

583. On account of their being sons of poor parents they do not, I believe, pay to the naval instructor?—No, they do not; they are required to serve several years longer than a midshipman does; and after they have been 10 years in the service the pay of a midshipman is considerably more than the pay of those who enter the masters' class.

584. Would you recommend that the education of a master's assistant should be the same as that of a cadet?—I certainly would have the education for all officers who are being trained for the navigation of a ship the same. I think, if they were put precisely on the same terms, that is, if all the advantages which are given now to midshipmen and cadets were equally given to masters' assistants, it would be a very great benefit to the service; and if there were any officers who chose to make themselves fully acquainted with the duties of a master, I would allow such an officer to choose that direct line, in order to do away with any ill-feeling between the two classes, which would be a great benefit.

585. There is a great deal now which is expected of a lieutenant which is not expected of a master, such as a knowledge of gunnery and steam; would it not be desirable to substitute survey practice and pilotage, or something of that sort, instead of gunnery and steam, for the masters' assistants?—Nearly all the masters' assistants, I think, are as well up in gunnery as the midshipmen are; they work the guns, and are as well informed in gunnery altogether as the midshipmen. I have seen some quite equal to midshipmen; in fact, they are equal in everything until the midshipman goes on board the "Excellent," and then he gets increased advantages; but up to that time, I think that a master's assistant has the same opportunity of learning as the midshipman, and does learn as much. I think it is very much to be regretted that he has no opportunity of learning steam; because, I think a knowledge of steam must be of great value to a master; in fact, I do not know any officer to whom it would be of more value. I know I felt the want of it myself. When I first took charge of a steamer, I was quite at a loss; I was quite in another sphere altogether. The first duty which I had to do on board was to take charge of that steamer; but I knew nothing at all about it, and then I regretted that I had not had an opprtunity of learning steam.

586. Do not you also think it very essential that the master should have some knowledge of surveying, and more practice in pilotage than they now have?—Yes, I think that all officers should have much more knowledge of surveying than they now have; I think that surveying is of the greatest possible advantage; it corrects their judgment in judging distances, and it is useful in every way. It is not the fault of the master, but the fault of the system, I am convinced, that now one-half of the masters never spent a day in surveying in their lives; they never have any practice in surveying, and they know nothing of it generally.

587. Young officers on board ship in the present day have their time very much taken up with study of one sort and another, for which it is difficult to find time; do you not consider it desirable that the masters' class should devote themselves particularly to navigation, surveying, and pilotage?—I think that the officers to navigate the ships should have the means at their disposal of becoming much greater proficients than they are now; for unless the master on board ship knows those things, and will take trouble with the second master and the masters' assistant, it must descend down to all those boys, and if they have been brought up in a bad school you cannot expect they will be any better themselves, as they know of no better system. In many instances, the masters who entered the service

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vice in 1838 and 1839, when they threw open the service to anybody who would come into it, were not educated men; they scarcely knew anything beyond being just able to scribble out a day's work. It was the immediate necessity for masters' assistants that obliged them to be taken in, for there were none left in the service then; the entry had been stopped for some years, so that they took almost any one that they could get. I know myself, that several men, of 30 years of age, who entered as masters' assistants, and who are in the service now, and in the Navy List; but most likely they never will be of any use to the service, and unless there is a college, or something of the kind instituted for the young masters' assistants to go to when they come home, where they can get a superior education, I see no hope of improvement in that respect, because, as things are now, I think the men degenerate every year.

588. What is the examination required for masters' assistants joining the service?—It is just the same as that of cadets; there is very little difference; except, I think, that the master's assistant is excused from learning languages. A cadet is supposed to know something of a foreign language, but a master's assistant is not.

589. What is the difference between the examination for second master and that of midshipman for lieutenant?—The college sheet is the same for a second master as for a midshipman; the one goes to the Trinity House for pilotage, and the other goes for gunnery and for a knowledge of steam.

590. Would it not therefore be better to give him facilities to attain a knowledge of pilotage, in which he has to pass, rather than a midshipman's education for gunnery, for which he does not pass?—If a separate class of officers be kept on board, one for navigation solely, and the other for gunnery and other duties of the ship, most likely that would be so; and there are a great many other things that would improve them, but I think it is almost a pity to have one man on board a ship who is in a prominent position, who knows nothing of gunnery, and who, if it should happen, for instance, in an action that it devolved upon him to take the command, could not on that account take the command of the ship effectually.

591. In answer to the questions which have hitherto been put to you, you have been supposing that the two separate classes exist, but you think nevertheless, that the education should be the same for both?—I think so.

592. Would you not give any advantage to the masters' class, with respect to surveying or pilotage?—I would give every advantage, to whoever it is, whether it is the masters' class or any other, for surveying and pilotage, and so on. I would not only give that advantage to them, but I would insist upon their doing it thoroughly; for I consider that their going to the Trinity House is a perfect farce.

593. Do you think it would be beneficial to Her Majesty's Naval Service that the class of masters, second masters, and masters' assistants should be done away with as a separate branch of the service?—I do.

594. To whom then should the special duties now performed by the master be entrusted?—I would hold out inducements to any officers in the service to take the navigation part of it, guaranteeing to those officers, after so many years' successful service in that particular branch, that they should receive promotion and advance to the higher ranks.

595. What do you mean by a guarantee?—I mean that after a certain number of years' service, if a man served as navigating lieutenant, he should be made a commander, and in some of the first-class flag ships a navigating commander; and after that, those positions on shore which are generally given to masters, masters' attendant-ships, and so on, might be given to captains. There is nothing that I know of to prevent a man's becoming a commander or captain of a ship because he has been a navigating lieutenant.

596. Should that promotion be to navigating commander, or to commander, generally?—To commanders generally. I do not see why there should not be a navigating commander; for instance, in any admiral's flag ship I do not see why there should not be a navigating commander, a master of superior rank.

597. Whatever the evil part of the present system may be, do you not look upon the useful part of the present system to be that masters of large ships are generally experienced men in that particular branch?—Yes; I think that masters of large ships are generally experienced men in that particular branch; but they are often an inferior class of men, and men, I think, whose position would be very much improved had they, in the first place, an education and a groundwork of much more scientific attainments than they have at present.

598. Do you look upon the masters of our large ships, in fact, our senior masters, as efficient or inefficient in their position?—I think that they are not the men they might be if they had had a better education, and I think many of them deplore the disadvantages under which they have laboured. I consider that from the number of years' experience which many of them have had, if they had received a theoretical education also, as well as a practical one, they would be very superior to what they are now.

599. It is a very general opinion that the masters in the large ships are very valuable, practical, and useful men; do you disagree with that opinion?—No; I think they are valuable and useful men, but I think they might have been very much more so, had they the means in their earlier life of being sufficiently educated to have made more use of their practice.

600. They have generally had pretty constant practice afloat, have they not?—Very generally, if I may judge from myself. I have been 28 years in the service, and I have never been employed one day in England in my life, but have been constantly on service.

601. Do not you look upon that as a very important fact, as conducing to the master's efficiency?—I think it is very important; but I think it is very hard at the same time; and I think it tends to the dissatisfaction that exists amongst the masters, because they are kept continually from home and on foreign service, and never get anything on board ship, or any other return for it.

602. Independently of the hardship of the case, do you consider that the work is well done by them, referring particularly to the senior masters?—I think that the work has been generally well done, and it is a great thing to have good practical men; but I think that if those men had also been educated men, together with the practice which they have had, they would be very much

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better. I think if they had had advantages at different times in the ships in which they had served of returning to England so as to have one, or two, or three months employment in surveying, or in any of the scientific pursuits that officers now engage in, they would be very much better men than when they come home, being thrown upon half-pay, and then sent off again without any advantages, or any means of ascertaining what is going on in the world, or of improving themselves, because their half-pay does not enable them to do that, it is so small.

603. How would you ensure men of sufficient experience as navigating officers for large ships, supposing the masters' class to be done away with?—If the present class were done away with, officers would educate themselves for the particular branch; and I imagine that it might be arranged that no large ship should be entrusted to one man alone. Very possibly the captain may have been himself a navigating lieutenant, the commander may have been a navigating lieutenant; and then if he had a sub-lieutenant in addition to one junior officer, instead of entrusting the ship to one navigating officer, there would be in all probability one, two, or three on board; and I am convinced that captains themselves would feel much more confidence from having experience in navigation than many of them do. I have known instances of officers becoming commanders, regretting that they had not given attention to that branch before, and they would give the world if they could only obtain that which practice alone could give them. And with regard to observing, the same thing may be said. I have known officers who were obliged to observe, acknowlege that they felt their inferiority, and regret that they had allowed so many years of their lives to pass away without attempting that sort of thing.

604. In what manner would you dispose of the masters and second masters now in the service, having special regard to the claims of the many old and valuable officers on the masters' list?—I have not given that very serious consideration. I scarcely expected to have to form an opinion upon it; but it appears to me to be very simple: that all the junior masters, under a certain standing, should be amalgamated with the lieutenants, and that masters of another intermediate standing, should be called navigating commanders; and I think by giving the option of retirement to officers who had been on the masters' list for many years, and have not served (as well as those on the Coast Guard) the number might be very easily disposed of, and without much expense.

605. Would they not lose in point of pay?—I imagine that they would not. In the case of the officers who had already gained a certain pay, I do not suppose they would reduce their pay simply because they put them on to another class. They would extend their present pay to those men who are now living, but others who would follow would know what they would have to expect.

606. Do you wish to make any further remarks upon the subjects upon which you have just been questioned?—There is one subject which, I think, masters feel more particularly, perhaps, than any other, which is, the late promotion that has been given to paymasters and engineers, which has been denied to them. Paymasters, who entered the service at the same time as I did, are now on the first class, and are receiving 600 *l.* a year as their full pay, and their half-pay is also more than mine. My pay is 270 *l.* a year, and theirs is 600 *l.*

607. Their half-pay is 1 *s.* a day more, is it not?—Yes; 1 *s.* a day more, and although they may have never been subject to exposure to the climates, or half the inconveniences that masters have to undergo, they are receiving greater pay and emoluments. I may say that, the other day, in the Mediterranean, in the "Marlborough," as master of the "Marlborough," sailing sometimes with eight or nine line-of-battle ships, I suppose of the value, at least, of 300,000 *l.* each, yet as soon as my duty was over on deck, as master of the Admiral's flag-ship, directly I went down in the ward room, I found myself the inferior of all the officers on board; the engineer and the paymaster, sitting by my side, were my superior officers. The paymaster has the rank of lieutenant-colonel, whilst I am the inferior officer of the whole mess. Then again, when actually on service, or on the poop of the ship, the master possesses a great deal of the confidence of the Admiral, and is consulted and spoken to by him, and enters into the duties of the fleet with him as well as of his own ship; and a great deal of the labour of taking charge of the fleet at sea devolves upon the master, and yet he is inferior to every other officer on board the ship.

608. Do you consider that the existence of a separate class of masters, specially charged with the navigation of the ship, has a tendency to render the officers indifferent to navigation?—Most certainly.

609. Have you, within your experience, seen that the other officers neglect, in a great measure, the navigation of the ship?—I have not only seen that they have done so, but I have known them themselves very much regret it.

610. You have stated, have you not, that many of the senior masters in the service, whom we have admitted to be a most valuable body of men, much regret their want of education?—Yes, I have.

611. Has the service materially changed within the last 20 years, so as to make education of much more importance than it was formerly?—I certainly think so. Twenty years ago the largest ship almost which they had in the service was a sailing line-of-battle ship, something about 2,000 tons. Now, they are gradually getting towards 6,000 tons; and steam being introduced, the deviation of compasses and all those things should be attended to; and unless a man has studied in early life he must be at a disadvantage. I think it is almost idle to expect an old master to enter into such things and become cognisant of them, as he ought to be, as master of a line-of-battle ship.

612. Has not the introduction of iron vessels, and the use of iron generally in the construction of ships, made a very material difference in the steerage and the manner in which the compass is affected?—I have never served in an iron ship; but I know that the compass is a useful article, and is really superior to what it was 30 years ago. It only requires a person who has served on board a man-of-war to see the compass as it was then applied, and to see the use that is made of it now, and to be convinced of the superiority of the new over the old compasses.

613. You know, probably, enough about iron ships to be aware that magnetism enters most largely into the consideration of the arrangement of the compasses, and that it really has become a most difficult problem to solve. May I ask you whether there is anything in the original education, or the training of a second master, to enable him

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him to deal with questions of that sort?—None whatever.

614. In fact, does it not require one of the best educations that is given at all in the naval service to enable a man to grapple with it?—I am not sufficiently educated myself to say that I could do so. I very much regret it, but I could not do it.

615. I think I may say, without reflecting in the least degree upon the masters now in the service, that there are very few of them who do understand that question of magnetism as applied to our ships' compasses?—Or, I should say, any other officers.

616. You say, "or any other officers;" but is not it fair to suppose that, from the educated class of lieutenants who have an opportunity of studying it at the Naval College if they like it, you would be able to select officers competent to undertake that work?—Yes. I feel certainly convinced that it will be as necessary, within the next few years, to have properly educated officers to become masters or to have charge of the navigation of the superior ships which are building, as it has become necessary within the last few years that officers should be instructed in gunnery. We remember that 20 years ago a gunnery officer was an unknown thing almost, whereas now it has become a science; and, as gunnery has progressed, so the ships progress.

617. In short, you are of opinion that the question should no longer be looked at from the point of view that it was some 30 years ago?—I think so. That it possibly would never affect me, for individually speaking, I suppose my career of going to sea is short; but I do hope, for the benefit of the service, that they will educate officers for the particular branch of master, and that the ships will be entrusted to men who will be more competent to deal with the improvements in science which have been lately developed with reference to ships, which can only be done by education.

618. In the ships in which you have served, has it been customary for the officers to look at the charts?—Very much more so lately than it was a few years ago. Most ships are supplied with a second set of charts, and I think the officers now look at those charts much more they used to do.

619. Do you think it would be desirable that the charts should be placed somewhere either on the half deck, or wherever may be a convenient position in the ship, in order that they may be looked at constantly by all the officers?—I think there should be a chart-room, if possible, for all the officers' use; not only should there be a general chart, but I think myself a room for officers studying that particular branch could be very easily afforded on board ship, especially some of the large ones; and that inducements should be held out to young officers to spend their time there, and make themselves better acquainted with the charts than they do now.

620. Would a navigating lieutenant make a worse commander or captain than any other?—I should think it would be the contrary.

621. Have you ever known any difficulty arise from a ship being accidently without a master?—I know, with regard to myself, once in a very large, valuable ship, being sick, a second master was taken on board, who had only just come from the merchant service, and I positively believe that there was no reckoning beyond just the dead reckoning kept of that ship for something like four days.

622. That second master, you say, came from the merchant service?—Yes.

623. Having been a mate there?—Yes.

624. Do the captains of the fine large merchant ships which run to Australia and the East Indies, and the Cunard steamers, navigate their own ships?—I think so entirely.

625. You have stated that you consider the examination at the Trinity House of very little use. Would you extend it, or would you institute any examination in pilotage for navigating officers?—I certainly would extend it, but I would not expect officers to be acquainted with pilotage as we are now, unless by affording them the means of learning it, and putting at their disposal the means of becoming acquainted with it. I do not hesitate to say, that in passing the Trinity House myself, the things that I passed for I never saw in my life, but I learned them from a book, as any school-boy would learn a lesson.

626. In short, to use a slang term, young officers do "cram" for that examination?—Yes; they have no means of getting it otherwise.

627. Do you think it desirable that a sailing vessel or steamer should be used in the Channel for the purpose of enabling those young men to learn the Channel pilotage?—I think it would be a very great advantage to all officers to know something about it. If a war broke out to-morrow with France, a knowledge of the Channel on both sides would be very essential to all officers, to the officers of the watch as well as the captain of the ship; and of course it would be much more so to the master or the navigating officers.

628. At present I believe very few officers have an opportunity of learning the pilotage of the opposite side of the Channel?—Very few; or even of their own side of the Channel. I suppose not one-third of the officers in the service would know the head-lands of the Channel on seeing them.

629. Is the subject now under the consideration of the Committee new to you, or have you thought upon it for some time?—I have thought upon it for years; in fact, ever since I felt the unpleasant position I was in, I have always hoped and wished for a remedy.

630. And it is your deliberate opinion that the service would be benefitted by doing away with the separate class of masters and having navigating officers?—Yes; navigating officers who should have a better education and better opportunities of constantly improving themselves.

671. In the event of the masters being retained in the service, what rank, do you think, would reconcile them to the position?—That of course would depend upon their standing.

632. Take the junior masters, what rank would you give them?—The junior masters should rank as lieutenants, and the senior as commanders; I would give the master after so many years' standing a commander's rank.

633. And with regard to the military duties of the ship, what position would you have them take?—That would depend upon whether they are to be a separate class, and only to know their own duties as masters.

634. With regard to the present masters, who, we will suppose, only do know their own duties, what position would they take in the military command of the ship?—I do not see that they can take any.

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635. You would have them remain in their present position with the rank and title of sailing lieutenants and sailing commanders?—But in their present position they nominally have command after the junior lieutenant.

636. What, then, would you suggest?—I see no position that I could suggest or that I feel would be a just position to put a man in, giving him nominally the name of commander or lieutenant, if he were not to have the authority and power of the rank which he holds.

637. Then the master would, according to your suggestion, take charge of a ship and of the duties of a ship immediately after the commander?—Yes; immediately after the commander, if he were properly educated.

638. In your last answer, you alluded to a set of officers who may spring up in the service hereafter; but in dealing with the present class of masters, if you gave them the rank of commander, in what position would they stand with reference to the present commanders of ships and with the lieutenants?—I scarcely know that there can be any alteration on that point.

639. Then you would merely have them as a sort of staff officers?—If you were to have them merely as staff officers, you would be doing them, I consider, very much injustice; you would get men of the same class that you have now, and being in the same position in which they are now they would be dissatisfied, and I do not think that it would be any benefit to the service.

640. If you were to bring forward a class of officers as navigating officers, how would you, when those men are promoted, and pass off into the upper branches of the service, secure efficient officers for the navigation of the larger ships?—If a man has been the navigating officer of a small ship, he becomes capable of being the navigating officer of a larger ship, and in all probability the captain may have gone through the same process, and will not depend upon the master to the same extent as he does now, and also a younger class of officers will be coming on, and he can have three, or four, or five officers to assist him, whereas now, not only frequently but almost always, there is only one man on board to attend to the navigation.

641. Have you been much in company with foreign ships, either French or American?—Yes; I have with French ships, not with American, for some years past, but I have been with Russian more than any one else. The other day there was a large Russian frigate lying in Simon's Bay at the Cape of Good Hope. I was doing duty at the dockyard, and one of the lieutenants of that ship was sent on shore for some things, and he was told to apply to me, and I was ordered to assist him in every way I could. In conversing with him about the service, he said, "We have masters just the same as you have, but we treat them as nobody at all, the same as they do in your service." I said to him, "Where did you get your information that they were treated as nobody at all in our service?" He said, "A few days ago I was conversing with an officer, I told him that we (the Russians) never considered our master a gentleman, and this officer said, 'neither do we; we never treat him as such.'" I said, "To prevent your going any further with this, I must tell you that I am the master of the 'Boscawen.'" The officer was very sorry, of course, and the Russian captain called upon me afterwards and apologised. I have also met with the lieutenants of French ships, most intelligent men, and I do not hesitate to say, from hearing them in discussion with our lieutenants, with regard to the conduct of the ships and of the different parts of the world in which they have been, and matters showing their knowledge and experience, that the comparison has been very much to the disadvantage of our officers. A large frigate went to China the other day whilst we were at the Cape, and the French navigating lieutenant dined at our table; besides being a navigating lieutenant, he had been also a lieutenant of tactics, and he had been also engaged on steam for three years, and really the man seemed quite *au fait* at everything on board ship; and he discussed the voyage to China in a manner that was pleasing to hear; he seemed to be thoroughly conversant with it, and to understand it. Some questions on similar subjects were put by him to one of our lieutenants on the opposite side of him, but the reply that he received was, "Those are things which we do not enter into; you must ask the master, and he will tell you."

[The Witness withdrew.

[Adjourned to Friday next, at Twelve o'clock.

Friday, 21*st February* 1862.

PRESENT:

Rear-Admiral the Hon. C. G. J. B. Elliot, C.B.
Captain Washington, F.R.S.
Captain Goldsmith, C.B.
Captain Charles Henry May.
Commander Cornelius T. A. Noddall.

Rear-Admiral the Hon. CHARLES G. J. B. ELLIOT, C.B., in the Chair.

Captain WILLIAM ROBERT MENDS, C.B., R.N., Examined.

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642. You are a Captain in the Royal Navy, and Deputy Controller of the Coast Guard?—I am.

643. How many years' service have you had as first lieutenant, commander, and captain, respectively?—Eight years as lieutenant in various ships; three years as first lieutenant of a frigate; four years and a-half as commander in ships of the line; seven years as captain of ships of the line.

644. In what class of ships have you served? Frigates and ships of the line.

645. Are you aware that discontent exists amongst the masters in the navy, caused by the feeling that they do not hold a sufficient relative rank as compared with the other officers?—I am.

646. Do you think that they have reasonable grounds for that discontent?—I think they have.

647. Will you state what those grounds are?—I have made a few memoranda upon the subject, which, if the Committee will allow me, I will read to them. "I think the services of the masters have not, in some instances, received the attention or just reward which they have unquestionably merited. I think the responsibility of the master in case of loss of ship should be second to that of the captain before a court-martial, and that the sentence should fall as heavily on the captain as on the master. Masters of certain standing, placed in commands of responsibility, have not had sufficient relative rank, compared with the civil classes, and I think that they should have, in some cases when afloat, the brevet rank of commander. They should participate in the honours awarded to the most favoured classes for distinguished services, and not be dependent for such awards upon capricious opinion. Perfect faith should be kept in this particular, that they might realise the substance, and not the shadow as heretofore. In the interests of the service, I think it essential to retain the office. The master is responsible for the performance of certain duties which cannot be so steadily or advantageously performed by any officer belonging to a class liable to frequent change. If he possess experience, steadiness, and professional ability, he can render efficient aid to the captain when proceeding into action or in pilot water, at a time when the attention of the captain in a ship of war must be occupied with many other important duties. The stowage and stores of the ship cannot be so advantageously placed in the superintendence of an officer belonging to a class more liable to change. If the designation of the office be changed, I think the character of it should be preserved. I entirely acknowledge the value of the service performed by the master. I do not think the class can be merged with the executive for command, without detriment to the interests of the service, and a class conflict injurious to discipline. I think the class should remain distinct from and subordinate to the executive, with rank for social purposes, equivalent to the civil branches, but holding the position they now do on board ship. I think the surveying class of officers from the executive ranks should be increased, and that no fleet in any part of the world should be without a ship attached for surveying duties, with special instructions to the commanders-in-chief for their guidance respecting her. I think lieutenants, masters, and sub-lieutenants should be called on to furnish plans, drawings, surveys, &c., which should be submitted to the Department of the Hydrographer for opinion, for the information of the Lords Commissioners of the Admiralty." I think there are instances of second masters having grievances. At this moment we have five on the coast guard; they hold rank as chief officers of stations over the chief boatmen, who are so placed for good conduct. The chief boatman in charge may be promoted to-morrow, and is frequently promoted, and as second class chief officer takes rank over his previous commanding officer; he is a seaman to-day, and an officer to-morrow, and ranks above the second master. I think there have been many instances of very distinguished services on the part of the masters, which have merited special notice. I could quote the case of one who is sitting at the table now, Mr. Noddall, and the case of Mr. Roberts, both of whose services were of no ordinary kind. Mr. Roberts did exactly the same duty before the enemy in the command of a steam sloop of war as that done by the commander; the commander became a captain and a Companion of the Bath, but the master received nothing equivalent thereto. Mr. Bower, the master of the flag-ship "Agamemnon," on the 17th October 1854, deserved as high consideration as any of his brother officers. I may state that there are many things in this pamphlet, which I hold in my hand, entitled "Facts and Observations with reference to Masters, R.N., with a Plan for the Removal of their Disabilities," with which I do not agree. In some instances more credit has been taken by the masters than was merited. The services of the captains would appear to have been ignored altogether in some instances. This pamphlet states, at page 16, "The battle of Navarino showed that masters still knew how to take a ship into action, and their exposed position in the bloody fray led to

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to the loss of several brave men of that class." I think the masters must have done this under the direction of their captains. At page 17, "The science and energy displayed by them (the masters) was not surpassed," that was in the Arctic Regions. "They sledged and sketched, and surveyed, and acquitted themselves to the entire satisfaction of their commanders, but, while every other commissioned officer with whom they shared the perils of Arctic navigation, themselves peculiarly responsible, gained promotion and reward, not one mark of favour was bestowed upon any of the masters." That is quite true, but it should also be said that the captains were not only the responsible officers, but were selected for their extraordinary ability and experience for those expeditions. The most important surveys have been conducted by the officers of the captain and lieutenant class. In the Baltic fleet they (the masters) performed good service; but there is particular credit taken in the pamphlet for this service. It says, "We swept for submarine mines. Even the master of the fleet, who conducted the operations, was not mentioned on the occasion." Upon that I simply ask the question, why were not executive officers employed? It does not appear to have been very distinguished service; the sounding under Bomarsund would appear to have been very good. In the Black Sea, as I have already said, the service performed by the masters of the "Britannia," "London," "Sampson," "Agamemnon," and Sanspareil," on the 16th and 17th of October 1854, was very good. I do not think anything could have been better. I think them deserving of equal honours. The report of those who sounded under Fort Constantine was most faithful, to almost an inch of the water. With reference to the master of the "Rodney," which ship did good and gallant service on the 17th October 1854, by anchoring in support of the "Agamemnon." The "Rodney" was commanded by the late Captain C. Graham. I think in that case undue credit has been taken, whilst I greatly respect the officer who was master. But at the bottom of the note on page 23 it says, "It must be stated, in justice to the other officers, that three of the lieutenants were on shore at the batteries, and the commander so ill as to be obliged to have a chair on the poop; hence the greater necessity for exertion on the part of the master. Had the ship remained ten minutes longer on the shoal, she must have been abandoned, as the fire of the Russians was every moment becoming heavier and more destructive." That is merely his own opinion. Previous to that there is a good deal said about the master doing just what it was his duty to do, with reference to the very last remark, relative to the absence of the officers; but then he takes credit for letting go the anchor in time. He was closing in upon a ship, not the shore, and therefore it might have been a mere question of difference of opinion; but I do not think the question of touching the shore under such circumstances was a matter of such vital consequence; she did very good work, and got off. At page 24, I think, in some instances, greater credit has been taken for the class of masters than was merited. I have put a note of my own at the bottom:—"More credit was due to Capt. Spratt, of the 'Spitfire,' than to any other officer, for all the work said here to have been performed by masters. He was ably seconded by two masters, Messrs. Stokes and Brooker; the latter was made a lieutenant for gallantry at Kinburn, which I witnessed." He piloted a gun-boat out under a heavy fire. The lieutenant who commanded her was made a commander, and the master was made a lieutenant, which was an exception. Mr. Brooker considered it a great compliment, I believe, to be promoted to the rank of lieutenant, which was certainly a marked approval of his gallant and skilful conduct. He was detached from Captain Spratt's ship for that particular duty. At page 26, to which I have already alluded about Mr. Wilson Roberts and others, I can certainly testify to the truth of the whole of his services described here, and can say that they are really under what he did, and I consider that he was hardly dealt by. I think, with regard to second masters and masters' assistants, the duties they have had to perform have not generally been fair upon them, considering their ulterior position. They have certainly been kept on the orlop decks, and in the holds, and in the performance of duties almost exclusively below, without sufficient attention to those of the higher portion of their branch. I have already referred to the case of Mr. Hughes, the master, who is now the chief officer of the Babbicombe Coast Guard Station, and his relative position with regard to the chief boatman and the boatman in charge, when he held the rank of second master, in which he was liable to be passed over by the seaman. He is a most steady, correct, and deserving officer; as second master, or a sort of first lieutenant of a vessel of the "Triton" class, he did his duty admirably in the Mediterranean for some two or three years; and in the Black Sea, where his commanding officer was wounded, he himself lost his left hand by the explosion of a pistol in his hand. That did not happen when he was on immediate service before the enemy; it was only at night quarters; but it rendered him unable to use a sextant, and for that reason he was placed in the coast guard, where he has been promoted to master. If the Committee will allow me, I will read an extract of a letter from Mr. Hughes, in which he speaks of his own individual case:—"I am, as you perhaps know, disqualified from serving afloat, in consequence of the loss of my left hand, for which I have a pension of 2*s.* a day. Such an injury would not necessarily have prevented an officer in any other branch of the naval service from continuing to serve afloat, and so rising to all the accompanying advantages. In my case, however, I can do nothing but serve in the coast guard always, according to present regulations, on the lowest scale of pay, and when, from old age or other causes, obliged to leave it, only the lowest scale of half-pay. All lieutenants in the coast guard, whether disabled from serving afloat, or merely serving in it as a matter of convenience, have a portion of their time allowed, one year for three, and the certain prospect of ultimate promotion, giving better position and increase of half-pay, and of widows' pension," because they retire at the age of 60 as retired commanders, and after that their widow gets a retired commander's pension. "I think, therefore, that I and other masters employed as I am, being unable, from injuries received or ill-health contracted in the service, to serve elsewhere, may reasonably hope the Committee will recommend some improvements and rewards for long and zealous services in the coast guard, and that we may participate in all advantages enjoyed by all lieutenants so employed."

648. With

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648. With regard to time of service in the coast guard, is not there a difference between masters and lieutenants?—Yes; lieutenants are allowed to count one year for three as sea time. At the top of page 33 of pamphlet, allusion is made to the position of the dock masters in London and the Thames harbour-masters, as compared with the position of master attendants in our yards with regard to the scale of pay; but the great companies, I imagine, give no retiring pension, although they give a high scale of pay, and I do not think they give a residence.

649. The master attendant's pay has been increased lately, has it not?—Yes; it has been increased, but it is still below that of the other classes in the dockyard over whom they rule. That is what they assert at least. The position of the master attendant in the yard with reference to the admiral superintendant has been entirely changed by a very recent order. The civil classes in the service have been given a uniform corresponding with the higher executive ranks according to length of service; but the masters have not, beyond that of the rank of lieutenant, except the master of the fleet. I had a table drawn up yesterday, showing the comparative rank of master with the executive officers of the army and navy, which, with the permission of the Committee, I will hand in; and also another table with regard to the scale of pay of the different officers of the army and navy.

[*The same were delivered in, and are as follows:*—]

PROPOSED RANKS and distinguishing Titles of the Master Branch.

Present Ranks, &c.			Proposed Ranks, &c.		
Titles.	Ranking with, in the		Titles.	Ranking with, in the	
	Navy.	Army.		Navy.	Army.
Master of fleet - -	Junior commander	Junior lieut.-col.	Master of Fleet -	Captain - -	Colonel.
,, of 15 years -	*Lieutenant - -	Junior major.	Master in Chief -	Junior commander	Junior lieut.-col.
,, of 8 years -	*Lieutenant -	Junior major.	Staff Master - -	†Lieutenant - -	Junior major.
,, under 8 years -	*Lieutenant -	Captain.	Master - - -	†Lieutenant - -	Captain.
Second Master - -	*Sub-lieutenant -	Lieutenant.	Sub-Master - -	†Sub-lieutenant -	Lieutenant.

* According to date of commission. † According to date of commission.

Masters at present have no higher army rank than Major (junior).

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COMPARATIVE PAY of the under-mentioned Ranks of Officers of Royal Navy.

Ranks.	On Promotion.	After Five Years' Service.	Master after 10 Years' Service, including all Acting Masters' time, and 4 Years as Second Master.	Master after 15 Years' Service, Surgeon after 15 Years' Service, including Assistant Surgeons' time, Paymaster of about 15 Years' Standing, being then 3d Class.	Master and Surgeon after 20 Years' Service.	Master and Surgeon after 25 Years' Service, Paymaster of 25 Years' standing, being then 2d Class.	Paymaster of 32 Years' standing, being then 1st Class.	Average Age on Promotion.	Pay received up to Time of Promotion.	Pay received 10 Years after Promotion from Time of entry into the Navy.	Pay received 20 Years after Promotion from Time of entry into the Navy.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.		£.	£.	£.
*Lieutenant	182 10 –	- -	- -	- -	- -	- -	- -	23	337	2,162	3,987
†Master -	182 10 –	209 17 6	237 5 –	273 15 –	328 10 –	365 – –	- -	26	1,044	3,252	5,805
Surgeon -	273 15 –	273 15 –	273 15 –	328 10 –	401 10 –	456 5 –	- -	31	1,748	4,698	7,708
‡Paymaster	249 8 4	249 8 4	249 8 4	349 15 10	349 15 10	474 10 –	600 14 7	31	1,576	3,980	6,975
									Supposing that each Officer continues serving.		

* Thus the lieutenant, who has not the good fortune to be promoted, is much worse off than either of the other classes.
† Receives half-pilotage; store allowance in some cases; 2 *s.* 6 *d.* to 5 *s.* a day when in flag-ships on foreign stations.
‡ Receives 2 *s.* 6 *d.* to 5 *s.* a day when in flag-ships.

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650. Although masters do not get rank when serving, still when they obtain an appointment to a dockyard they do obtain rank, do they not?—They have commander's rank. A master may have very long and good servitude, but still the civil branches have been given much higher relative military rank for social purposes.

651. In the dockyards the master attendants wear no uniform, do they?—No. Going on to page 48 of this pamphlet, there is a proposition to adopt the term "navigating officer" of whatever grade; navigating cadet, navigating lieutenant, navigating commander, navigating captains; but my opinion is that that would not work well. "The province," it says, "of the navigating lieutenant should be that of the captain's aider and adviser in all matters relating to the navigation of the ship, her sailing trim, alterations of stowage, &c.; and his respectful counsellor in action." (That is just as the master is now.) "In the absence of the captain, the senior executive officer would stand in the captain's place"—(and then there is a rather remarkable observation)—"unless in action, or on particular service in which the captain and other of his senior officers were placed *hors de combat*, when the rank of the navigating officer should be made operative." That is ambiguously expressed; but I think it is meant that they should take precedence of the executive class. If so, the office had better be abolished and merged into the executive. My opinion is, that if the title of navigating captain be established, the country will question the necessity for two captains. I should prefer the retention of the master and pilot, or some synonymous term. Whatever the designation, the character of the office should, I think, be maintained, as well as its permanency; but relative rank should be accorded as well as strict justice in the award of honours for distinguished services.

652. Do you think that it is for the good of the service that the classes should be merged?—I do not think so; but I think it is important to hold to the office. I do not think you can place it in what I may call the migratory class, that is to say, the executive lieutenants who are passing on continually to the higher grades; that would seriously interfere with the important duties which masters now perform with regard to stores, stowage, and many other things connected with the ship, which I do not think can be placed in the hands of executive officers with so much advantage to the service.

653. With regard to the navigating officer; supposing he were to take rank above the commander and lieutenants, do you see how, under the particular circumstances which the writer of the pamphlet alludes to, that could be carried out?—I do not; I think it would lead to a conflict of classes, which would be injurious to discipline.

654. With regard to the pay of masters in the coast guard, have you heard any complaints?—We have the complaint of Mr. Hughes only. I do not think there is any complaint with regard to pay. I do not know anything on that point of my own knowledge.

655. The pay of a master above five years' standing is 209*l.* 17*s.* 6*d.*; what pay would a master of that standing receive while serving as chief officer on the coast guard; all masters receive the same, do they not, in the coast guard?—I think that they do; they have 10*s.* per diem pay, and 1*s.* 4*d.* provision money, but find their own house. They have certain coast guard allowances; they are borne on the ship's books, and they have horse allowance in certain cases, and their expenses connected with the Board of Trade are paid according to the services performed; it is a fluctuating amount.

656. Those allowances which you speak of are equally held by lieutenants, are they not?—Yes; they are merely the reimbursements of the expenses incurred for duties performed under the instructions of the Board of Trade.

657. You have already stated that no portion of the time served by a master in the coast guard counts to increase his full or half pay?—None, to the best of my belief.

658. The full pay of a lieutenant does not increase by length of service, but does any portion of the time which he may serve on the coast guard count to increase his half pay?—It counts as one in three of sea time.

659. Then in the case of a master who has been disabled from active service, and appointed to the coast guard, does that officer labour under any disadvantages as compared with lieutenants similarly situated?—No, with the exception of time for pension; but the lieutenant is compelled to retire at 60 years of age, whereas the master is permitted to serve as long as he is able.

660. Taking into consideration the nature of the duties of chief officer, &c., and the fact that masters cannot be benefited by the annual promotion, do you think that any portion of their coast guard time should be allowed for full and half pay?—I think it should on the same scale as that of the lieutenants.

661. You have suggested that surveying vessels should be attached to fleets; would you look to those vessels as educating vessels for masters' assistants?—I certainly would, in conjunction with the other officers; but I am distinctly of opinion that the higher responsibilities should rest with the higher ranks, that is to say, with the captains.

662. With regard to the education of masters' assistants, can you suggest any improvement?—They pass through an examination now, but I think that the interests of the service would be consulted by specially educating them for the duties which they have to perform. At this moment there is a training ship, a marine college, at Liverpool, at which the boys have taken a very high stand indeed in education. Some of them are now coming into the service, and they certainly will be superior to those lads who came into the service without those advantages.

663. Is their joining the service held out as a premium for good conduct?—Yes. The Duke of Somerset has offered cadetships in either class, either for the executive or the master class, to some of those lads, but they have selected the latter.

664. Are those given to boys who are specially recommended?—Yes, to boys who are specially recommended, and who hold a certain position in the school by their conduct and ability.

665. Have you met with masters' assistants who have been educated at Greenwich school?—I only knew one lad who had been educated at Greenwich school, and he was really clever in navigation, though not so apt at seamanship.

666. Do you look upon it as an important point that the masters or navigating officers of our large ships should have had previous practice as navigators in the same line?—Yes, certainly.

667. Have

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667. Have you not generally found our senior masters to be very efficient useful men?—Very much so, and most zealous.

668. Supposing the class to be done away with as a separate branch of the service, do you see any way to obtain men who have had large experience as navigating officers for our large ships?—I think you would have an equally good mere navigating officer; but you would not have an officer who would perform all the duties now performed by the master; I mean consulting the interests of the service.

669. Do you think that the captain would not have so trustworthy a person as the present master under him for the performance of those duties?—Not for a combination of the whole of the duties.

670. With regard to pilotage, do you think that the present system is the best, or in what way would you improve it?—Undoubtedly you would have as skilful a navigator and as skilful a pilot in the executive class, or any other class so trained, whose business it was; but I think a captain would place more reliance on a man who had arrived at a certain age, and whose peculiar province it was to navigate the ship, than on a younger officer who may be here to-day and away to-morrow.

671. Are you aware of the system with reference to navigating officers in other navies?—I think in the American navy they have what they call a sailing lieutenant, or navigating lieutenant, and I think the French adopt the same rule.

672. Have you had any conversations with French officers upon their system?—Upon that particular part of it I have not.

673. To follow up the late course of examination, why should a young lieutenant be here to-day and away to-morrow; might not a regulation be made, that a sailing officer should remain in his ship during her commission?—In that case you would retain the office under a new name.

674. Do not you consider that confining the navigation of a ship to a separate class like the masters, has a tendency to make all other officers indifferent to the art of navigation?—It may have such a tendency; but it depends very much upon the captain who commands the ship whether that should be allowed to exist.

675. But if an officer has no great responsibility, he is not likely to trouble himself much about any particular branch of the service in the natural course of affairs, is he?—I quite accord with that.

676. You have stated, have you not, that you think that the captain should have the responsibility of navigating his ship?—I think that the entire responsibility should rest upon the captain. I mean the responsibility for the duty being properly performed by those under him.

677. If he is to have that responsibility, should he not have every opportunity of fitting himself for such a charge?—Certainly.

678. Would not throwing open of the charge of the navigation of the ship to all lieutenants be the best means of fitting those officers hereafter for the responsibility of navigating their own ships when they come into command?—I do not see how you are to make a large number of officers responsible for the safe conduct of any ship. I think, with good regulation, the lieutenants being obliged to submit their work to their captain daily, in corroboration of what the master now submits, is one of the best guides a captain can have.

679. Practically speaking, is it the case in the service that the lieutenants observe and work their day's work?—In my experience it has been so; and I may quote a case in point. When the order first came out I was serving as first lieutenant of a frigate in India, and I was sent for by my captain, and told that as first lieutenant, notwithstanding my other duties, I was to set an example of work, and take my day's work to him; and I recollect, that not having worked a day's work for some little time, I did not quite agree with the master. I was wrong, and was sent below to correct it; and every officer from that time worked his day's work daily and observed.

680. Is not that the exception rather than the rule?—I should think that if the captains were held responsible for allowing such a regulation to be departed from, they certainly would not depart from it.

681. Are you aware whether the commanders and young captains in the present day generally navigate the ships they command?—I think they do. I know in one particular instance of a young commander who was sent out to the coast of Africa, and told that he would have no officer to navigate the ship. He replied that he did not want one, and he navigated her exceedingly well.

682. Are not gunboats generally navigated by their own commanders?—They are; therefore the school is a good one, and makes the executive officer conversant with the work; but I do not think he could ever replace the office of a master in large ships, where the captain and the executive officer have many other important duties to attend to, which in fact compel their attention through every period of the day and night.

683. You have lately held the honourable position of captain of a flag ship, and have generally served in very large ships; are you acquainted with any of the junior masters in the service?—I cannot say that I am with many. I am acquained with one who was put on board the "Royal Albert" in consequence of the illness of her then master. This young master, whose name was James Jones, was a most excellent, energetic, and good young officer; and he appeared to me to understand his work thoroughly. We were proceeding from the Archipelago to Malta, accompanied by the "Princess Royal" as a convoy. The master of the "Princess Royal" was out in his reckoning on making the island, and the "Princess Royal" overshot the island; but the reckoning of the young master was perfectly correct. We anchored in Malta harbour, consequently, twelve hours before the "Princess Royal;" and it was a matter of great importance that the ship should be safely anchored, as she had a dangerous leak which imperilled her safety.

684. Your testimony to the character of Mr. Jones is highly honourable to him; but the Committee have heard from ten different witnesses, all of whom were masters, that nothing can be worse than the training and education of second masters and masters' assistants for the duty they have to perform. Do you confirm that?—I have stated that; but in my former answer I only gave what I knew to be the fact.

685. Is not the real reason of the superiority of the senior masters, with whom you have been chiefly acquainted, their constant practice and experience at sea?—Certainly.

686. If, instead of choosing these senior men from about 400, we might select them from the whole list of lieutenants, would there not be an equal

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equal chance of getting as good men?—You would get quite as good navigators, but I am still of opinion that you would not fill the office now held by the master so advantageously to the service.

687. Do you attach much importance to the charge of the stores which a master has to undertake?—I do.

688. I believe they are chiefly the boatswain's stores that he interferes with; and he has a nominal superintendence, has he not, over the gunner's and carpenter's stores?—There must be a divided responsibility in all ships, and he is responsible for the stowage and the correct management of the stores.

689. Practically, it rests between the boatswain and the first lieutenant, does not it?—No. The first lieutenant or the commander cannot put his hand to an expenditure of anything without the captain's permission first of all, who generally consults the master, who refers to the books if necessary, or is able perhaps to tell him at once whether such and such a thing can be applied or not, and he must be guided by the master in some measure.

690. But is there any such mystery in it that the commander and the boatswain should not manage it between them? Or if there are any accounts to be kept, is there any reason why the paymaster should not keep them, if it was anything that went beyond the boatswain's ability?—I do not think the thing could be left with the boatswain and an executive officer, who may be on deck for days together, with only just time to take his meals, as often happens to a first lieutenant or a commander, or any other executive officer, upon the exigencies of the service; whereas the master specially watches over the interests of all these things.

691. Do you attach any great importance to the stowage of the hold; and do you think that it is necessary that a separate class of men should be retained for that as well as for other things?—I take the stowage of the hold in combination with many other duties, particularly in the equipment of the ship at first starting or refitting; and really, as far as my experience goes, I do not see that those duties could be done so advantageously to the service by any other arrangement as they are now done by the master.

692. Within the last 20 or 25 years, has not the introduction of steam, and the introduction of iron into our ships, and the building of iron ships, greatly changed the state of the service?—Certainly.

693. Is it not likely that questions will arise out of that change, which well educated young officers are more likely to be able to deal with, than those who have received little or no education?—Undoubtedly; the educated officer will be the better man for the office.

694. You stated that you had been in company with French ships; do you know that the lieutenants of French ships have a very much better knowledge of navigation, and are generally better educated men, than the officers of the English service?—I do not think they are better educated as a body, and I am certain that the French ships are not handled in such a seamanlike way as our own. I have been a great deal in company with French ships for years, and, except in certain portions of their naval organisation, I see no reason whatever why we should take a leaf out of their books. I have seen the greatest blunders committed by French ships. I quite acknowledge that the French have improved within the last 16 years in an extraordinary way as respects their organisation; but I do not believe they have improved so much in real seamanship, and certainly in active warfare they are by no means equal to us. I have seen French and British vessels of war acting together before the enemy, in which the superior seamanship and skill of the latter have been manifest, and, with the characteristic chivalry of French naval officers, frankly acknowledged by them. I am perfectly prepared with many examples, but I conclude the Committee will not require me to name them.

695. Then the Committee understand it to be your distinct opinion that a separate class is necessary to have charge of the navigation of a ship?—I think, consulting the general interests of the service, that the office now held by the master cannot be abolished.

696. That being your opinion, would it not be desirable to give the masters' assistants and the second masters the best education which the service can possibly afford?—Assuredly.

697. As a general rule, do the officers consult the charts on board a ship?—During the last few years they have done so very much. I think a separate chart is supplied for the use of the officers. I have certainly known the officers in ships under my command consult it with great interest. Formerly they were debarred access to the charts.

698. If the space on board a ship would not admit of a chart cabin, might not a chart in fine weather be placed temporarily on a moveable table on the main deck of the ship, in order that every officer might have access to it during the day?—It would be a very good thing, and I think better than the captain's cabin, which is now often used for that purpose.

699. You have stated that masters of certain standing, who are placed in responsible command, should have the brevet rank of commander; would you give that brevet rank to masters commanding store ships?—I think that question should rest with their Lordships, as to what they consider the responsibility of the command. My own opinion is that the master of the Queen's yacht, and the master of the "Osborne" Admiralty yacht, should have such rank. The master of the Admiralty yacht has been placed in most unpleasant circumstances, owing to his having, so to speak, no rank. The consequence is, that he presides at his own table, even with Royalty on board; but he has been excluded from the invitations given by the Governors of our Colonies. I think it is a galling position to place any officer in who has the feelings of a gentleman.

700. Do you think it would be desirable tha the second masters should be educated on boar the "Britannia" with the cadets?—I would rather say that they should be educated at a naval college with cadets.

701. Do you think they should have the same privilege of being educated at the college as sub-lieutenants have now?—I would not consider it a privilege at all. Whatever is best for the interests of the service should be done. I think that the education of those officers would certainly tend to the interest of the service, and therefore I should not consider it a personal privilege. I think that if a nomination were given to any young lad coming into the navy in that line, he should have all the advantages that the service could afford him to fit him

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him for his duty. Of course a boy understands, and his parents understand when they place the boy in the service, that he will grow up in the master's line; they know that he will occupy a certain position; and therefore on that particular ground I do not see that there is any grievance. But I think that the grievance has been in passing them over when other classes were considered, and not giving them the rewards due to meritorious and distinguished service.

702. But you are aware that, in waiting for their examination, they are detained in the "Victory" flagship at Portsmouth, instead of being permitted to go to the College, as the other branches of the service do?—Yes; but I would let them have every advantage that the service could give them.

703. You think that there should be no distinction with respect to their going to the College?—Just so. I say again I should not consult personal feeling at all in the matter, but I should look to the interests of the service, and give them the best education they could receive with that view.

704. In short, you consider that they should have all the advantages now given to other officers?—Certainly.

705. Should it be considered unadvisable to abolish the class of masters, what measures should be adopted to remove the discontent which is now stated to exist among them?—In a general way I have already stated, with regard to reward and honour, that they should be justly and fairly considered, and I now state that they should have the relative rank granted to other officers. With regard to social position, I do not see that I could suggest anything better than what is contained in the table which I handed in to the Committee.

706. In what manner could masters rise in the social scale without clashing with the relative rank on board ship?—I mean relative military rank. They would not interfere more with the relative rank on board ship than the surgeons do now.

707. But how would you put them in that position?—I would give them the same rank that surgeons have now. The surgeons do not interfere in the military rank on board ship.

708. Do you mean in the same manner as is the case with marine officers?—Yes; I mean that masters should have the relative rank given to the civil classes; for instance, for the purpose of going to court, or that he may take his position in a procession. A master now is junior to all the civil branches; whereas the surgeon is not so, nor is the paymaster, nor is the chief engineer. They are all put up, but that does not interfere with their duty on board ship. I may mention a case which happened in the Mediterranean. One of the surgeons debated with his commander or the first lieutenant at the ward-room mess table about some duty or other, and claimed to be of a superior rank, mis-reading the circular, and he appealed to his captain, who also was in doubt about it, and appealed to his admiral, who also was in doubt about it; but I think the Admiralty set the matter right. The interest and well-being of the service must be considered before class interest.

709. Do you not think that if the masters attained additional social rank, they would feel more than ever the hardship that they have not military rank equal to their social rank above the lieutenants?—No, I do not think so; because all other things being granted fairly and justly to the master, a lad enters the service knowing what he will be. Therefore it is no breach of faith, nor can he make it a grievance; for his parent, before he puts him into the service, knows that he will rise to a certain grade, and as he serves that he will acquire certain titles, which, as I said before, may enable him to take that proper position in a procession or in any public ceremony from which he is now excluded. I do not think it would at all interfere with the executive rank in the ship, and my object is to preserve that intact.

710. Are you aware that the present old masters do complain of being junior and subordinate to the young lieutenants?—I know they do.

711. Do you look upon that complaint as a just complaint?—I think, had they been awarded all that was due to them in other respects, that complaint never would have arisen, because captains are very careful, generally, in my experience, with regard to the conduct of the junior lieutenants towards their masters. I do not mean to say that in some instances the masters have not had reason to complain, but no young lieutenant is allowed generally to domineer over a master, who is an experienced man or an old officer, or to take advantage of him to keep the watch, or anything of that sort. Of course all those interests must be in the keeping and care of the captain, whose business it is to see that they are carried out properly.

712. You would improve their civil rank, without altering their present executive position?—I do not think I should at all take the executive duty out of the hands of the captain, commander, or lieutenant; I think that should be preserved. I think if you cannot do that, you had better abolish the class.

713. But at present a master does take the command of a ship in certain cases?—After the lieutenants.

714. And you would still keep that so?—I would still keep that so.

715. As the masters generally who have given evidence before this Committee have objected to the term of "master," could you suggest any other designation for them?—I cannot suggest any, except the title laid down in the table which I have handed in, namely, master of the fleet, master-in-chief, staff-master, master, sub-master, and master's assistant. I have thought about it a very great deal.

716. The name of master is a very respectable term, is it not?—Yes, and I have heard old officers express a hope that the term might not be changed. The term "master," is a historical term, and is connected with some of our most brilliant actions; in fact, a time-honoured name.

717. In awarding the master's rank for distinguished service, it appears from the evidence of several masters who have been examined, that as they have no private means, and look to their pay for support, they would not accept a commander's rank with a commander's prospects; in that case how would you provide for them?—If they rose in the grades in accordance with this scheme of mine without changing their scale pay, they would have the military honours whi they now seek, and which are bestowed on all other grades. Mr. Roberts, to whom I have already alluded, earnestly applied to be made a commander, simply that his distinguished service might be recognised in that act; and as the Order in

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in Council, I think, authorised it, I could never understand why it was not given to him.

718. Probably he would have accepted it, being a very young master, and his pay being small?—No, he was not a very young master; he was master commanding, and he was an ambitious man.

719. As you have had great experience as a commanding officer, what length of time would you recommend a second master to be employed below; seeing that he has knowledge to acquire below, should it be in the proportion of one year in three?—That must be in accordance with his general ability; it would be almost impossible to define a time, because if a young man showed aptitude and ability for his duties below, and became thoroughly conversant with them, he should not be kept below. It has been the practice of the service to keep these classes always on the decks below in charge, so that they really were pale and sickly looking, and were utterly unfitted for the duties of their ulterior position.

720. Have you, generally speaking, found that the master willingly assisted in the regulation of the holds and store-rooms, as enjoined by his instructions?—Yes, in my experience that has always been so.

721. In the evidence lately given before this Committee, it appears that one of the master's assistants lately introduced into the service was the son of a corporal of marines; and although he possessed sufficient ability to qualify himself for the position, do you not think that the masters' class should be the sons of parents holding a certain position in society?—I must ask from what school the lad in question came.

722. From Greenwich Hospital?—Then I think that if their Lordships had decided that ability in that school was to entitle a boy to admission to the Navy in that line, they could not waive it in that instance; but considering the number of officers in the service who would look upon it as a reward for their services to have their sons introduced into the service in that class, I think it desirable that such appointments should be confined as much as possible to the sons of gentlemen.

723. Master attendants, by the present regulations, are allowed to hold their appointment until they are 65 years of age. Do you think that this acts with justice towards many men who have done good service as masters, or do you think that the appointment ought to be for a limited time?—I think, considering the laborious duties of a master attendant, that 65 is a great age, seeing that he has very hard work to perform on foot daily.

[The Witness withdrew.

JAMES BODIE, Esq., R.N., Examined.

J. Bodie, Esq., R.N.

724. WHAT is your rank and seniority in Her Majesty's Navy?—I am a master of 1844.

725. Will you state shortly your length of service as second master in charge, and master, and also the names of the ships and the stations on which you have served?—I joined the "Arrow" in 1838 as second master, and remained until 1844 cruising about in the South Atlantic. I then joined one of the experimental brigs for a short time, and I afterwards served in a South Polar expedition, which brought me up to 1846. I then joined the "Spartan," and remained in her till 1849. Then I joined the "Indefatigable," and remained in her till 1852. For 12 months, or about that time, I was in the "Arrogant." I then joined the "Boscawen," and was with the Commander in Chief as master in the West Indies until 1857. Then was for nearly 12 months in the "Agamemnon," putting down the telegraph cable. I then joined the "Marlborough," and was three years in the Mediterranean in her with the Commander in Chief. Since then I have been in the "Victory," and I now am in the Royal yacht.

726. We are informed that discontent exists amongst the masters; will you state what you believe to be the grounds of that discontent?—The reasons for the discontent of the masters are, in the first place, that we have been displaced from our rank relative to other officers; secondly, we are very much disappointed about our not being reinstated again; and, thirdly, I do not think the education of young masters' assistants to make them good masters is sufficiently attended to. I may also say, taking as an example my own case, that in 1844 I was in a better position with respect to rank than I am in now. I am in the Royal yacht, an appointment which was given me, I suppose, for my capabilities and service. In 1844, I was superior in rank to the civilians; but I am now, in 1862, after being 18 years a master, inferior to all the officers on board who were then, and now are, my messmates. The surgeon is represented by the medical inspector, the engineer is represented by the inspector of machinery, and the paymaster has the same rank as the commander, whilst I rank junior to a lieutenant; and one of the lieutenants who is on board now I actually had charge of for two years when he first came to sea as a cadet, at which time I was a master.

727. Did you sign the petition which was presented to the Admiralty by the masters in 1858?—Yes.

728. Did that petition set forth what you believed to be the chief grievances of your class?—As well as I can recollect, it did, because I imagine we took great care about that petition, and the officers who were intrusted with the drawing of it up would have naturally seen to that.

729. Some alterations have been made since that petition was presented, have there not, in the masters' position?—Simply with respect to pay. An increase of pay has been given since that; but with regard to their relative rank it is just the same. The only difference has been that in speaking of the relative rank of the Army and the Navy, we, the oldest masters, have been ranked with majors. That is the only improvement. With regard to their position in the ship, there has been no improvement at all.

730. The master attendants' rank has been improved, has it not?—Yes, the master attendants' rank has been improved; they have been made commanders; but I am confining my attention now to the masters alone.

731. What measures would, in your opinion, remove

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remove the discontent which is now stated to exist?—I would suggest the improving of the class generally, and giving them better rank with the executive officers; restoring them at least to the rank which they had before the alteration as to the civilians; also the whole of the time that they have been serving since passing for master, instead of part, to be allowed; and a scale of pay rising more gradually and steadily than it does now; not by jumps at periods of three and five years.

732. In other respects are the masters content with their improved rates of pay and half-pay?—I think they are content with their half-pay certainly, and with their full pay generally, but not at all with the widows' pensions. For instance, there are some officers who run much less risk of their lives in battle than the master, but their widows' pensions are a great deal more than those of masters' widows; and it really would look as if the chance of our being killed in action being greater than that of civilians, was thought of in the case of the pensions that our widows get after our deaths, supposing that we were to fall in action.

733. You are particularly comparing the masters' pay with that of the civilian branch of the service, are you not? — No, the widows' pension. As far as I am individually concerned, I think that the pay is nearly ample, but the widows' pensions is a matter that we all feel very much indeed; it is so singular that it should be marked in that way.

734. What is the ordinary widows' pension for a junior master?—£. 50.

735. What is the ordinary widows' pension for the civilian classes?—For a junior paymaster, 50*l.*; for a surgeon, 70*l.*

736. What is the ordinary widows' pension for masters of eight years' standing and upwards?—£. 70.

737. What of staff surgeon?—£. 80.

738. The next increase to a surgeons' widows' pension is when he becomes staff surgeon, is it not?—Yes.

739. What service must he then have had?—He must have the same service that I have now, namely, 20 years; excepting that if my time as second master were given to me, as an assistant surgeon's time is given to a surgeon, I should count from 1838, instead of, as now, counting from about 1840; that is to say, two years of my time are not now given to me.

740. What is the ordinary widows' pension of the staff surgeons?—£. 80.

741. What is the ordinary widows' pension of paymasters of eight years and upwards?—Over eight years, 70*l.*; over 15 years, 80*l.*

742. Do you think it would be beneficial to Her Majesty's naval service that the class of master, second master, and masters' assistant should be done away with as a separate branch of the service?—I think that it would be beneficial if the titles were done away with; but I think that, for the benefit of the service, and in order to conduct it properly, the officer who does our duty on board a man-of war should still continue to be there.

743. With regard to the title, what would you suggest?—I would amalgamate them all with the executive class. Up to a certain period they should be called lieutenants, and beyond that commanders.

744. When you speak of amalgamating them, do you mean that you would amalgamate them in name?—Yes; I would amalgamate them in name, but, if thought necessary, they should be distinct in position, that is to say, they should perform their duties in the same way as they do now; but I would give them the title either of navigating lieutenants or navigating commanders instead of masters. I am sorry to say that the title of master has got into disrepute from their having been apparently neglected so much of late years.

745. The alteration which you suggest is merely with regard to their name?—Merely with regard to their name; and also I would have an alteration in the education of the juniors, in order to make them more effective officers than they are likely to be now.

746. Do you consider the present education of the juniors objectionable?—I doubt whether they have any, excepting what they get after joining a man-of-war, and going into regular service. Admiral Martin, in the Mediterranean fleet, takes great care that they shall be exercised in sounding, surveying, and looking at harbours in the way they are told by the instructions. But of late, for the last twelve months, I have been in the habit of examining second masters, and I find some of them very deficient. I find others sharp clever fellows; and they will always be known by the first-class certificates that they have got for the last twelve months from the "Britannia."

747. Have you latterly been one of the examining officers?—Not in every case, but nearly in every case; and I know that some of those who come before us were very deficient indeed. I could give an instance of a young officer being examined, and when I asked him about bracing the yards a-by, he did not know the meaning of the term.

748. You are speaking particularly with regard to seamanship?—Yes; that is the only thing that I examined them in, excepting the stowage of the holds, and also the fitting of rigging. The examinations are not enough for the young officers. Sometimes they pass abroad, and there they have a more strict examination, I think, than they do at the Trinity House, for pilotage; they certainly cannot have a more strict examination than they have at the College for Navigation; and after they pass for master of a small vessel, they pass once more at the Trinity House for a line-of-battle ship. Those are the only examinations. In my time I passed four, and, I think, five examinations; three at the Trinity House, and two abroad.

749. At present a master's assistant undergoes nearly the same examination as a naval cadet on entering the service, does not he?—Yes; on his first entry he does, but after that his education and examination ceases until he joins his regular ship; for, with the exception of the training in the two little brigs, on board of which there are two or three masters' assistants, that is all the instruction they have before they join their regular ship. When I belonged to the "Victory," I used to take the lads out once a week on a fine day in a steamer, all round Spithead and the Needles, to show them the pilotage there; but that was simply voluntary on my part. When they join their ships in the Mediterranean, they are taught like the other lads, under the charge of an officer who is required to give them instruction in seamanship.

750. That is to say, although they undergo
nearly

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nearly the same examination as the cadets on joining the service, they have not the subsequent instruction on board the "Britannia"?—No, nor the examination which they get in the "Britannia." A youngster, when he joins the service, undergoes the same examination to enter as a cadet does; but after a cadet has been on board the "Britannia" some six or seven months, I do not exactly remember which, he undergoes another examination to pass out; and, in addition to taking with him his character for cleverness, he has certain time given him; in fact, a part of the time which he has been serving on board the "Britannia" is allowed to count; so that he his undergoing essential instruction for his future examination, and is getting time in the service.

751. Has the master's assistant no examination from the time he enters the service until he is examined for second master?—He has an examination at the end of three years, which examination is the same, except as to languages, as a midshipman passes who has been two-and-a-half years in the rank of midshipman.

752. You think, then, that the masters' assistants should, after joining the service, have some such instruction as the naval cadets now obtain on board the "Britannia"?—I think, from the amount of nautical knowledge that the master necessarily should have, the masters' assistants should be instructed very much in the style that the marine cadets are now; that is to say, that open competitions at the public schools should be established for lads who wish to enter the service, that they should only be admitted into the service with certain qualifications which they must acquire, and then they should be put on board a ship, and treated as nearly as possible in the way in which marine cadets are; they should be sent on board a training-ship adapted to them, in the same manner as the marine cadets are sent on board the "Excellent." I would have them serve a certain period, which would be decided upon hereafter, and then I would have them sent to sea as masters' assistants; but before they went to sea as masters' assistants, their examination should be very strict, and if they could not come up to the requisite standard they had better be rejected at once, in order to give them another chance in life, instead of letting them come into the service and only be disappointed, as many of us have been.

753. Would not you have the training somewhat different from that now given to naval cadets?—Yes. The training of the masters' assistants, as we will call them at present, should comprise everything that is a master's duty now, and it should be instilled into them, and they should positively know all parts of a ship, in the way of rigging and sails. They should know the holds and the common modes of stowing them. They should know the mode of making a rope, the way of splicing it, and fitting of the sails, and the names of all parts of the sails; in fact, everything that a second master is asked when he is examined as a master, excepting in the working of the ship.

754. You would have them taught on those points more than the cadets are now taught on board the "Britannia"?—It is not possible they can be taught more, but some of the things taught on board the "Britannia" might be left out; for instance, with a competitive examination, a certain amount of nautical knowledge, or rather nautical astronomy, and navigation they would know when they first join; therefore the scholastic matters need not be so strictly attended to. The examination should be more as to the equipment of a ship, but still it should be enough to make them thoroughly good sailors, and well educated men. When I first came to sea I learned my rudiments of sailing in a launch which was rigged as a frigate. We got her from the "Dartmouth," Sir T. Fellowes; and one of the lieutenants used to come with the youngsters, and all had to work just the same as we worked in the ship. Afterwards, in the next ship that I joined as master's assistant, independently of the natural wish which of course one has to acquire knowledge, I was stationed at the wheel, and used to steer when we went to quarters. That was under Captain Codrington, in the "Orestes."

755. Would you alter their treatment with regard to education after they joined a sea-going ship?—When they joined a sea-going ship, they should be, of course, all under the direction of the captain, but they should also be under the immediate direction of the navigating officer, that navigating officer doing the duty of a master, which is to take charge of the rigging, the gear and sails, and all the equipment of the ship, under the direction of the captain, as the instructions say that he is to have charge of the rigging and sails. I think that they should be his assistants, and certain parts of his charge should be deputed to those young officers, and after they were quite acquainted with one particular branch they should go to another. If there were three of them they should keep watch, and attend to the navigation of the ship in their watch, the same as if they were the master on deck at the time. They should be employed on all services where boats were employed, not only in anchor work, but in watering ship and rafting casks, in fact, doing every duty they possibly could do, and they should be kept constantly at it. That was the system in former years.

756. With regard to the pilotage, what improved instruction would you recommend?—That those masters' assistants, during the time that they were in this instruction ship, should either be cruising in the Channel, or else, in order to prepare for the contingency of bad weather, and their not being able to see the landmarks, should be visiting some harbour in order to know its local position, and the way in and out of that harbour; because I hold that a pilot, to be a good pilot, ought to know both the going in and out of a harbour without any landmarks, which we seldom see on the coast of England; and in course of time he acquires a knowledge of the coast in the same way as a person acquires a knowledge of the different streets of his native town. At least, that is my experience. As to pilotage abroad, the charts are always so good now that really any one almost can pilot a ship after a little practice, if he knows the chart. But there are some cases in which, by the instructions, we are prohibited from taking pilots; and it is a clause that we feel very much, because it appears to throw a doubt upon our inclination to fulfil our duty in that particular, by saying that if, after a certain time we take a pilot, it shall be charged against our wages. I can hardly imagine any officer thinking of employing a pilot from any motive but what he thought was a good one, and that he would not take a pilot except when there was real necessity.

Supposing

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Supposing a vessel arrives off Cork, and it is blowing very hard from the southward and westward, there are a great number of ships congregated there, and the captain asks the master if he can take the vessel into port. The master says, "I can take her in, but there may be so many vessels in port that I may not be able to find a good berth, and with the large ships we have now I should very likely damage her." If that ship took a pilot he would know, having left the port lately, where the best berth was and pick it up; and I do believe that if the amount of damage in that harbour alone that the Admiralty sustain with the men-of-war were put against the pilotage that was not taken, it would cover the expense of that pilotage over and over again. I instance Cork, because it is a convenient port, and it is very easy of access. But imagine a large ship like the "Warrior" going inside there with the place full of merchant ships; the master does not know where to bring up, he cannot see beyond the vessels, and she is too long to thread; but a pilot of the port, even if he were not a good pilot, would know where the empty space was, and take the ship there.

757. That is to say, though a master is conversant with the port, and able to take a ship in, you are of opinion that it would still be desirable in such cases to have pilots?—Yes, in some cases it would. I know Cork Harbour very well; but without that I believe that with a chart of Cork Harbour, any one who has been in the practice of taking a ship in by chart could take her in; but he does not know where vessels are lying; and then because a master may suggest it, and a pilot is taken, he must pay for that man after the first time. I merely mention this instance to show how we regard it. It is not so much the value of the pilotage that we pay; but suppose the master is a needy man, he may, in order to save his pilotage, risk the vessel if he has not the prudence to check that motive. There are cases where that might happen. I do not think with the new charts there is a doubt one could take a vessel in where the tides are not very strong, or the harbour very tortuous.

758. With regard to surveying, do you think that it ought to be more taught than it is at present?—I think, in speaking of the education of the masters' branch, that surveying should be an essential part of it, or at least enough to enable them to prepare and plot out a sheet of new soundings in such a manner that the hydrographer, when it came to his office, might be directly able to form a chart of it. I think there are many second masters and masters in the service now who can do that. Having been in a flag-ship for a number of years, all the tract charts have come to me; and a great many of them, so far as penmanship and copying are concerned, which are part of the surveying duties, are very creditable indeed.

759. The opportunities for acquiring a knowledge of surveying are not great, are they?—The opportunities are sufficiently great, if they were put in practice. At the wish of Admiral Martin, in the Mediterranean, where I was in the flag-ship with him, I used to take the masters' assistants away whenever there was a favourable opportunity, to show them the several anchorages, and also to show them the mode of taking angles and cross-bearings, which a great many of those boys, particularly the Greenwich boys, are taught. They have generally acquired the rudiments and know the principles thoroughly; and I may say the same with the Bluecoat boys also, and in fact of nearly all the boys that come from public schools; and that knowledge, after being put in practice, would be of very great service. For instance, what the naval cadets learn in the way of steam, in the little "Bee," the masters' assistants may practice in a similar steamer surveying at Spithead, or at Humble Creek, or any empty creek in the neighbourhood; they might take the vessel there, make a survey of it, and submit it for examination.

760. What duties have the masters' assistants to perform in the ships in which you have lately served?—On board the large ships that I have been in I have always endeavoured to get the masters' assistants to keep watch, which they have generally done. In the "Marlborough," without my request, they were deputed to keep watch. The first second master that we had in the "Marlborough" was day mate, and did the duty upon deck, which is a very excellent place for seeing anything that is going on; and another second master used to keep watch, and at other times attend to the deck, for it was the Admiral's order that they were to do the duties of mates and midshipmen.

760*a*. Do you know what the general practice in the Mediterranean fleet was in that respect?—Previously the second masters were kept in the unfortunate position that they had been in for many years—namely, down below; but when Admiral Martin joined, he had that altered, and in the "Marlborough" they always did the deck duty. I am not certain that they all did that duty in every ship in the Mediterranean, but certainly they did it generally.

761. What do you suppose was the general practice previous to that order with regard to masters' assistants?—The masters' assistants in the "Marlborough" kept watch. One of them had the jolly boat; and after he had for a certain time the jolly boat, the other one was put in, so that, generally speaking, one of them was in the boat. If the boats went away watering, or went upon any service, one of the masters' assistants went with them. The anchor work and warping was not very great in a large ship, but, if it had been, they would have worked at that also. The only important instance of exercise in anchor work that we had was slinging the bower anchor under the launch's bottom; and in that, of course, all the junior officers would assist—the mates, and midshipmen, and masters' assistants, and everybody. At other times, I may observe, that when the fleet were cruising in the Mediterranean, the admiral, when my duty did not call me to attend to the working of the ship, wished me to have, and I always had, the midshipmen, the masters' assistants, and second masters on the poop, and pointed out to them the action of the ship's sails as they tacked or wore, or performed any naval evolution, excepting when the hands were on deck, and then, of course, I attended to my own duties.

762. Do you suppose that such a practice generally went on in the other ships in the squadron, or generally in the fleet?—I do not think that the practice of having them on the poop in the way that Admiral Martin required went on in the other ships generally.

763. Do you know what the general practice with regard to masters' assistants keeping watch was?

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was?—After the admiral's order every one kept watch, but before that I do not know how it was. I should fancy that they kept watch, because there is an order that they are not to be below, so that I suppose they used to keep watch.

764. You think that the master of a ship has a very good opportunity of giving proper instruction to the masters' assistants?—Yes. I think in seamanship he ought to have an opportunity to give proper instruction, because now it all depends upon the commander or the commanding officer. There may be obstacles thrown in the way of the master, who at last, after repeatedly asking for the thing to be done, may get tired of it; others may feel a disinclination to do it—but they ought not—because they are ordered to attend to it.

765. With regard to the instruction under the naval instructor, how is that, as compared with the cadets?—That is exactly the same as with the cadets. They go to school, and the instruction is paid by the Government for the masters' assistants, while the cadets pay for themselves; but I do not think it is possible for the masters' assistants, in the way in which they are instructed now, to have nautical instruction sufficient to fit them for masters at the time they are eligible to become so; because I think that the education of masters should be as superior in nautical knowledge as it is possible to give any one. A master should be a thorough seaman, a very excellent navigator, and a moderately good surveyor.

766. You think he should have experience before he is eligible to pass for master?—If I had the arrangement of the juniors, I would put them, as I said before, under the same arrangement as the marine cadets, that would bring them up to their level. They should go into the service at 15 or 16; from 17 to 19 they should be masters' assistants; from 19 to 22 they should be second masters, and then they should be eligible to be masters.

767. I presume that you would have them subject to examination?—Yes, they should be subject to examination in every case before they were promoted; but they should be promoted as early as it is possible to allow young men to be masters. They should then serve for three years, and pass another examination, which would be very much like the first one, excepting that they would be expected to display a more ready knowledge of all matters connected with seamanship, and handling a ship, and weighing in tideways, and shaping courses in any dangerous and difficult navigation; and at the end of six years (that is, another three after this examination) they should have another examination, which should comprise a more intimate knowledge of the Channel, and generally a knowledge of all the ports to which they have been accustomed, on whatever station they may have been. All these examinations should be very strict, and if not up to a certain number of points they should be rejected; that is, that they should be put back for a certain period, and come up again, so that during probation their time should not count.

768. I gather from your evidence that you look to improving the masters as they now stand, rather than to doing away with them as a separate branch; is that so?—Exactly so. I mean that for the well-being of the service and the conducting of ships, there must be an officer of our speciality on board ships. It has been mooted that the lieutenants should navigate the ships; there is no doubt that they can navigate the ships quite as well as a young master; but in looking over the Navy List, and judging the number of lieutenants that are promoted to be commanders, a lieutenant is generally, upon an average, 10 years upon the list; and therefore, that officer can only have three years of his time at least in the practice of navigating the ship. If one had more, others would not have an opportunity of doing the duty. The consequence is, he would only have three years' amount of experience, and no more, which I think is not sufficient for the masters of the large ships which we have now, because there are many things in a master's duty which are acquired only from long practice. The very fact of the lee-way is not to be picked up at once; and I dare say that in all the men-of-war there are not a dozen ships now that have those point cards that used to be upon the taffrails to mark the lee-way. There are many things that are important to know when it comes on to blow; for instance, to know the drift of a ship under storm canvas, the set of the current, the change of winds, and (especially along a shoal coast) the use of the ground-log, which very few know except those who have been employed in the River Plate.

769. That is to say, the advantage of a master is, that in the larger ships the masters have great experience?—Simply that, from the long practice which masters have. I have been for the last 32 consecutive years constantly at sea; the longest time I have been in harbour has been these last 12 months.

770. During all that time your mind has been given to that particular duty?—Solely and altogether; and for many years of my life I delighted in and was proud of being a master; but I found that the class I belonged to was neglected, and others were promoted over us without any fault of our own, and I, like many others, became very tired of it.

771. You would like to see some promotion, some superior rank, would you not, in your class?—I should like to see that, if it is possible to be granted. I do not see how promotion can come to us if we are admitted into the other class, because that would be unfair to them. I would add another thing. With regard to myself, I think I have quite experience enough to be a captain of a man-of-war; but my habits and duties, and all that, have not fitted me so much for a captain, as an officer who has constantly been expecting and looking out for that situation. I am sure that if we had more encouragement it would make us a happier set of men. It could not make us more zealous, probably, or more attentive to our duty, but we should work with a better heart than we do now.

772. Supposing masters of certain standing were superior to lieutenants, do you think that that would work well on board a ship?—Yes. That is to say, if we are not to become captains or admirals, which I have no ambition to be, it would act very well in this way: that if we are made lieutenants or commanders we should only have the title, without expecting to become ultimately captains and admirals, unless we did something very meritorious indeed, which of course would be taken into consideration. We should not affect the other branch in any way, because if the captain was killed in battle the commander would take the command, and if the

commander happened to be killed the master would take the command, if senior to the lieutenants, that is to say, according to my notion; and in that case the master would be able to fight the ship quite as well as the lieutenant, both in point of bravery and the wish to preserve his own ship and capture the enemy's; and he certainly would have more experience than the lieutenant, from the fact of being very much older; and afterwards the admiral would appoint an officer to take command of her. Again, a master and a lieutenant are often on the same duty; but the lieutenant, who may be a young man of half the master's age, being his superior officer, arranges and does things as he likes, and whilst the master is a nonentity for the time being. All the lieutenants I have met with have been very good and very kind in permitting me to carry on the duty, but it is simply on the sufferance of that officer; and there are many instances, as the Committee must be aware, in which it would probably be better that the master should do the duty rather than the lieutenant; for instance, in clearing the hawse, and bitting and unbitting the cables, &c.

773. With regard to the ordinary duties of the ship, when a master happened to be the senior, how would you manage that?—In that case, the master would be as it were on the staff of the captain (with the exception of being an executive officer), the same as the paymaster, or the surgeon, and all the other officers who have their own duties to perform; that is to say, the captain has the general charge of the ship, and they are subordinate to him, and have their duties under him. In the case of a line-of-battle-ship, if the captain went on shore, the commander would become the commanding officer; if the commander went on shore, the next officer, namely, the first lieutenant, would become the commanding officer and not the master; and if the first lieutenant went on shore, the second lieutenant would take the command, and so on.

774. Then, in some instances, the masters may take the command, and in others not?—Only in case of the death or wounds of a superior officer.

775. In all other cases you would look upon them as staff officers who were not to interfere with the common duties of the ship?—Just so.

776. Although the master might be a superior man in rank?—Yes; those officers would take command of the ship in the gradation of rank, just in the same way that the lieutenant of the flag-ship takes command of all other lieutenants when he happens to be with them; but the instant that he ceases to be the lieutenant of the flag-ship, or is detached upon any service with a number of men, he takes his ordinary rank with the other lieutenants.

777. With regard to the officers of the watch, have you found any difficulty in carrying on your duties?—No, not at all; because in wishing to alter the ship's course, or to do anything to the ship, I have always gone to the captain, who has sent for the officer of the watch to tell him to carry out my wish; or, if I was going out of the cabin, he has asked me if I would be kind enough to tell him any alteration that I wished to have made. Of course, any alteration that I want made is simply a suggestion of mine to the captain; I do not expect it to be a positive wish of mine. I am acting under the captain's directions; and if, as our instructions tell us, "where there is any shoal or danger in our course, we should point it out to the captain," I would take the chart to the captain, and show it to him, and suggest probably that if we were to go this side or to that side, it would be better than to pursue the present course.

778. Would your conduct towards an officer of the watch be in any way different according to his being a lieutenant, and therefore your superior, or a mate who is junior to you?—No, not at all. Of course, in my long service, I have been in ships with midshipmen keeping watch, and masters' assistants keeping watch, and mates keeping watch, and lieutenants keeping watch. I have suggested things to them, and they have received it all in a good spirit, so far as I have seen; and in very many cases they were but too glad to accept my assistance.

779. Do you think that the alteration of rank which you propose would satisfy the masters in general, seeing that although they would be superior to the lieutenants, they would only in one or two cases take the command of a ship over them?—Yes, I think it would, making due allowance for giving us a chance of promotion if we do anything meritorious; for instance, like Captain Hall of the "Nemesis," or like the last young gentleman that was promoted, Mr. Morice, who was second master of a gunboat, and was promoted and made a lieutenant. Those are solitary instances of reward; there are very few others; and we expected, of course, that we were to have those chances whenever they came to us.

780. You would have, as a rule, promotion in your own line?—Yes.

781. But with exceptions of promotions, occasionally, to the other line?—Yes; because we can hardly expect, in fact it would not be justice to the other officers, that the whole number of officers in the masters' class should come in and swamp them in the general promotion, because there would always be the same number of admirals, no matter how many masters, if there were a thousand masters; and it would be unfair, not only to all the present juniors, but to those who afterwards came into the service.

782. In a former part of your evidence you have sketched out an admirable theory of education for masters' assistants and second masters, in which I entirely concur, and which I hope to see carried out; but may I ask what is the education which, generally speaking, they do at present practically receive?—I am sorry to say that when they first join the service, after passing an examination, they are put on board the "Victory" for a short time until they are appointed to ships. Whilst they are on board the "Victory," three or four at most are placed in brigs, where they remain for a month or two; they go out in these brigs, and see the working of them; and when they are being worked they are, of course, on deck, and the second master and lieutenant in command are supposed to point out to them the mode of working the ship, their natural wish to learn assisting them. After they join a regular man-of-war, they are under the special care of the master, according to the instructions, to be taught all points of a seaman's duty.

783. That is the theory; but would you tell the Committee what is practically and actually the case, if you happen to know it?—Except in my own case, I do not know. I can give an instance of a man who came to me, who did not know

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know how the yards were placed; and I could mention other instances.

784. Although the regulations require this valuable education to be given to the masters' assistants, practically they do not appear to receive it?—I think not.

785. Have you happened to meet with many of the young masters in the service lately?—Yes; I have met with them whilst employed in swinging ships in Portsmouth Harbour.

786. Did they appear to understand the subject, and to be aware of what they were doing?—I think so. I think that some of the younger masters are very sharp young men; others, as far as I have observed, have not been so sharp. In fact, the masters now have not experience, and cannot acquire experience, to the same extent as they did before. Our ships, to begin with, are rigged by dockyard riggers; no seaman, and indeed no one, can become such sailors as they used to be in former times. A master is sent down to superintend the stowage of the stores, not the rigging; but in superintending the stores of course he would attend to the rigging whilst it was going up; but during the time he is there he has so much to do to see to these stores, because they are placed, though not immediately in his charge, yet under his superintendence, that he sees very little of the rest of the ship; and sometimes this most extraordinary thing happens, that a master is sent down to join a ship already rigged. The decay of seamanship may be shown in this way. When I first came to sea, I was, as I said before, a volunteer of the second class, and was employed in every way that I could be under Captain Shepherd, who was my commander; he kept me very strictly; and the little launch that I have mentioned was the vessel which we used to cruise about in, and in which I picked up a great deal of knowledge. Then, afterwards, in the "Orestes," I was taught steering when at general quarters. When I was second master, for six years of my time I was employed in the "Arrow" sailing ketch, cruising about. Now I have seen second masters come to be examined who have never been in a sailing ship, but have been perhaps for six years in a steamer.

787. Fully admitting that the facilities for acquiring seamanship are not so great as formerly, I must mention to you that we have it stated in evidence before this Committee, by about eight of your brother officers, that the masters' assistants and second masters generally pass the greater part of their time between decks, and in the orlops, until they are promoted to the rank of master. Is that within your experience?—Yes, that is within my experience, certainly.

788. That being the case, they are appointed to the smaller ships as masters, are they not?—Yes; in some cases they are.

789. At that moment, where is the advantage of that young master over the junior lieutenant of that ship, as to his knowledge either of seamanship or of navigation?—In many cases I have known second masters who have been kept below in that way, zealous enough to come on deck and see what is going on. Knowing that they were to become masters, and that they were to become responsible for the ship, they have come on deck and seen the working of the ship. I could instance one second master who, I know, used to come on deck and see all that was going on, and of course go down to his duty again. From their being kept below they have not the chance of learning so much as if they had been kept on deck, which I think is very unfair to them.

790. I understand you to say that this excellent young man did take advantage of every opportunity, and by so doing he contrived to acquire the knowledge which a lieutenant would have as a matter of course, and which a lieutenant could not very well help having, he always having been on deck; is not that so?—Yes, that is so.

791. Then, after the master had received the excellent education which you have proposed that he should receive, would he not then probably be superior to the lieutenants?—He would be superior in nautical knowledge; that is, he would have the same amount of sailor's knowledge that a lieutenant possesses, and he would have more of survey knowledge than the lieutenants possess, from his practice of navigation and nautical astronomy, in which subjects he would have had more experience; but he would know less of gunnery, and probably less of steam.

792. Do you consider that a captain should be competent to take the responsibility of the navigation of a ship?—I think a captain ought to be a good navigator. I think, if necessity compelled him, he ought to be able to navigate his ship. But I think there ought to be another officer,—the officer that I should wish to see,—who, conjointly with the captain, should be the responsible officer; and that officer should feel a double responsibility, that is, the responsibility of being able to conduct the ship well and properly, and also the responsibility of knowing that he was telling his captain how the ship should go truly and right.

793. It is your desire to get the best men you can into the service to fill the responsible situation of master, is it not?—Yes, that would be my desire.

794. Why would you limit yourself to a selection from about some 200, rather than have a selection from something like 1,200 officers?—I do not limit myself to a selection from 200. I would leave the position of that officer open to the whole service; a cadet and one of these masters' assistants should stand in the same position. If a cadet, who, as a midshipman thinking that his position would be better, either pecuniarily or otherwise, or from a love of that particular branch of the service, wished to become a navigating officer, he might do so upon passing the examinations; but I hardly think that it would be fair that he should receive the superior pay, and then have the chance of being promoted in the regular course of service, in the same way as those who have been receiving an inferior pay all the time.

795. You would throw then the line of masters or sailing officers, if we may so call it, open to cadets as well as to masters' assistants?—I would throw it open to competition to respectable people in the whole of the United Kingdom, and I would throw it open to cadets as well as to others.

796. I understand you to say that at a particular stage of the service of an officer you would throw it open; do you mean before admission, or after the cadet has been a couple of years in the service?—After a cadet has been a couple of years

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years in the service, or even three years, I would give him time for reflection; he should not come in from any hurried notion that he might have acquired of it; he should have time to think of it; and if he were competent to pass the examination for sailing officer, and wished to follow up that particular line of the service, he might do so. In fact, I would be rather pleased if these officers came forward in that way.

797. It appears to me that we have now advanced a step. You consider that the sailing officer should be the best man in the service, and you would select them from the whole body of the service up to a certain age?—Yes.

798. Could you name any age up to which you would allow it to be open, when they have passed their examinations for lieutenants?—Yes; I would have it in this way: After a cadet enters the service, he should go on through the regular grades, as cadets do, until they become eligible to pass for lieutenants; and if they passed a very excellent examination, such an examination as they now make the lieutenants pass, which is a first-class examination, it should then be offered to each of those officers, whether he would prefer as a regular lieutenant to go through that line of service, or whether he would take the position of a sailing officer, with the additional pay, and go on in that particular line, with the chances of getting promoted for anything which he may do hereafter; just in the same way as the engineer and artillery officers are permitted to choose their branch of the service from the superiority of examination.

799. Then the Committee are to understand you, that you think that the rank of sailing officer should be given as a reward of merit?—Yes, if they choose to accept it.

800. Is it not to be feared that having a separate class of masters, as at present, has a tendency to prevent the other officers from paying attention to the navigation of the ship?—It certainly has that tendency, because the officers now know that they may seldom if ever be called upon to do that duty in a ship. There are some few officers I know who are very excellent navigators, but none of them practically do navigate; and, in point of fact, without experience they cannot acquire the habit of readiness in doing the duty that an officer acquires who has been in the habit of doing it; they may take sights, and they may regulate the rate of chronometers, but they must be some time in practice before they can have sufficient confidence in themselves for all their duties.

801. You have said that you would dislike the system of a lieutenant being a sailing officer, because he could only have three years' experience in that line; why should he not have his whole 10 years (for that is about the average time of a lieutenant's service) devoted to the duties of a sailing officer?—There is no objection to his being a sailing officer for the whole 10 years; but if that were the case, only a very few would acquire experience, and all the others would be in the same condition in which they are now.

802. It would be open to the whole class of lieutenants to be sailing officers, would it not?—Yes, but they could not all be sailing officers, at least they could not all be in practice.

803. But looking to the general benefit of the service, would not you require all the captains in the service to be competent to navigate their ships; and, if so, would not those officers, looking to 30 or 40 years hence, gradually rise up to be competent to navigate their own ships when in command?—They would be a little more competent than they are now, but not much more, because after being commanders those officers go on shore for long periods on half pay, and their habits of navigation, unless they keep them up, must get rusty. Their acquirements in seamanship may not do so, because that is like swimming; they are accustomed to move yards about, and they can hardly help remembering it, but they may forget the way to apply an equation to a chronometer, or a small correction in the rate of lunars, or many things of that sort.

804. I understand you, that you would always have some young men to assist the sailing officer?—In line-of-battle ships the officer representing the second masters would be one of the juniors in the sailing line, and should assist the senior. A master's assistant, or a junior officer in a small ship, should assist the master, but there should be always two good navigators in it; that is to say, the young officer might be as good a navigator as the older one, but he cannot have such experience as a sailor, from not having been at sea so long.

805. If the desire is to throw this eligible and important office, as I consider it, of sailing officer open to the whole service, and not to confine it to one class, do you see any objection to that?—Not at all.

806. And you would make the selection when they go to pass their examination for lieutenants or second masters?—Yes. When they go to pass the examination, the young men who enter the service with the intention of becoming masters or sailing officers, should have no choice; they should, after they pass, go on of course in that particular grade; but the officers who entered as cadets should, when they pass, have the choice whether they would wish to become sailing officers, or whether they would wish to go on as officers in the line of admirals. They should have that opportunity offered to them, because there are many cases in which a young man may be six years at sea, and his prospects and chance of interest may show him that he may remain a lieutenant all his life, and may not be promoted; or he may think he may not get his promotion; and he would sooner take the position of a sailing officer, with the extra amount of pay, and the ultimate advantage of being a master attendant; and it is to be hoped that there will be even more master attendants than there are now. He may prefer to take the chance of that, instead of stopping short as an old lieutenant or a commander.

807. Supposing the position of the master improved, as you suggest, do you think that you would induce volunteers at present to enter that line from those who would be eligible for lieutenants?—No, I do not think there would at this moment.

808. But supposing the position of the master to be improved, as you have suggested it should be, do you think it would be so then?—Then there probably would be some volunteers, because a young man would have time to reflect, and perhaps would see an advantage in it; but now, certainly not. I know that even the boys in Greenwich School have refused a master's assistantship; they prefer the merchant service.

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The older masters never knew that we were to be placed in the position in which we are.

809. Do you happen to have heard lately of the Trinity House opinion of the second masters who offer themselves for examination there?—I have not heard lately; but I know that the second masters, that go up as second masters, know very little of the Channel. Certainly it can only be in theory, from the fact that they have never been in the Channel.

810. How does the second master prepare for his examination at the Trinity House?—By getting the charts and the books supplied by the Admiralty for the Channel; studying them, and learning the questions that they know the Trinity House will put to them. The Trinity House, in many cases, confine their questions to cross bearings and buoys, in other cases to the courses and distances from headland to headland, and to the leading marks into and out of ports. Now all those, excepting in the cases of bearings from headland to headland, are questions which any one can answer from a chart; but should all the buoys be removed, and the leading marks in the ports be taken away, in the case of a war, or the fear of an invasion, a more practical knowledge would be necessary. I therefore think that, in the examination for pilotage, the questions should be extended to the set of the tides, and the shaping of the course of a ship that is coming out of Spithead, and passing the Owers on a blowy night with a gale of wind from the W., or W.S.W., passing through the "Needles," the appearance of land coming in from across the ocean, and falling in with it in the Channel, the reasons why ships lie to upon the starboard tack in south-west and westerly gales of wind, and upon the point of the shifting of the wind, coming up tide, and many other matters, which I believe naval officers would be better able to question them upon than the Trinity House would—not from any doubt of the gentlemen at the Trinity House being sailors, and good examiners, but they have not been accustomed to handle a ship of war.

811. You consider that the Trinity House examination might be extended advantageously to many other subjects?—Yes; it might be extended advantageously to subjects connected with the management of a ship. In fact, speaking of pilotage, with the charts that we have now, I have gone into, I dare say, 500 ports which I have never been in before, and out of them again, with the chart only. That might be done very well in the Channel, if we saw the land, where one is in the habit of knowing the use of the soundings, especially if you come from abroad; but no one would venture to run down upon that coast in thick weather without having experience of it as a pilot, to know whereabouts he was when he saw the land.

812. That is where you have no soundings to guide you?—Yes; and not only that, but in the Channel, the mid-channel soundings are all well enough, but when you approach the coast, it shows from 50 fathoms to 40 and 30, and you must even then in soundings of 30 fathoms know the land, because within the range of 30 fathoms, there are many parts equally distant from the coast. For instance, you must know Portland; and if a man saw the Point of Portland, or saw the Start, after having seen it he would know it again. A man sees Portland or St. Catherine's, but if I had never seen it I should doubt which it was; and speaking of approaching by soundings, one should come in with extreme caution.

813. That is to say, you must carry a continuous line of soundings, and nothing but continuous sounding is of any use?—That is so.

814. An occasional sounding is a pure fallacy, is it not?—It is worse, because it may lead you to a very serious mistake.

815. You would not fear that the general interests of the service would be damaged by procuring this single, very excellent, and well-educated man that you speak of, and confiding the whole of the navigation of the ship to him?—No.

816. You think there would be no risk of the other officers paying still less attention to navigation than they do at present?—No.

817. Are you acquainted with foreign navies?—Yes.

818. Is there a class of masters in any other service but the English?—No, with the exception of the American. In the American service there are some old masters left, and there are masters' commanders of small vessels; but there is this peculiarity in other services, that if an officer navigates a ship, it is merely from land to land; wherever they are they have pilots.

819. That is, if they can be obtained?—They take fishermen or anybody; they will take some one on board the ship who knows the coast. I have not met a foreign ship for many years that had not a local pilot on board, to pilot her on the coast; whereas in our case we never take pilots. I was in the "Spartan" in 1846, in the Mediterranean, and at that time there was not a single ship went east of Malta which had not a pilot in her. I was in the "Marlborough" last year also, in the Mediterranean; we had about 35 sail of pennants east of Malta, and there was not a pilot in the whole fleet. As a reward for my pilotage in taking the ships about, my pilotage has averaged 3 *l.* 10 *s.* a year, and I have never put a ship on shore yet, or ever had to report that I have run a ship aground. I made up my pilotage the other day, and it comes in 18 years to 58 *l.*; in many cases the pilotage was so small that I did not care about claiming it. My pilotage for going in the Tagus in the "Indefatigable" used to be three dollars.

820. Are you aware what the Admiralty pay for pilotage every year; that it is about 12,000 *l.* in ordinary years, and in some years it has mounted up to 24,000 *l.*?—I was not aware of that.

821. Have you had any opportunity of hearing the opinion of officers of foreign navies about our own system with respect to masters?—I have heard Americans express the opinion that it is a very good one, and regret that they had not the same in their own service. I have never heard any opinion upon the subject from the officers of other navies.

822. You mentioned Cork Harbour; are you aware that the regulations say that "any harbour which is easy of access;" a harbour filled with shipping is not easy of access; therefore the captain has full power to grant a certificate as to pilotage, and it would be paid immediately, would it not?—It does not say so in the instructions, and I merely judge from the instructions. I cannot fancy a master refusing to take a vessel in from any whim of his own; his zeal, and his wish to prove himself a good pilot, would induce him to do it; and the reason that I mention Cork Harbour

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Harbour is because it is such an open harbour that any vessel might go in; but a number of vessels might be inside, which would quite alter the case. Moreover, if you take a pilot, your responsibility does not cease in consequence of the pilot being on board; because the instructions are that the master is to see that the pilot does his duty, so that we are virtually still the pilots of the ship; and if anything happened, the master would be questioned about the precautions that had been taken, just in the same manner as if he was in charge at the time. The responsibility would be simply shared with the pilot.

823. What title would you substitute for that of masters?—Navigating officer or sailing officer; I think navigating officer would be better; and they should have the rank of lieutenants and commanders.

824. The masters' assistants and the second masters have a certain amount of knowledge which they have to pick up below; would you consider a third of their time below sufficient?—I would not have them spend their time below, any more than I would have a midshipman do so. But with respect to the holds of a man-of-war, from the beautiful arrangements of the ships, they being almost all steamers, the holds should be converted into store-rooms, and the only stowage in them would be where the salted and dried provisions are kept. The water casks and the ballast used always to be stowed in the holds, and it required men of experience and judgment in the mode of stowing them properly and safely; but now the stowage is so simple, and the hold is so divided, that you may stow it with casks without any risk of damage.

825. Who had charge of the hold in the "Marlborough"?—The second master part of the time.

826. What age are you?—I was 46 last October.

827. What are you looking forward to as a reward after your long service?—I hope to be a master attendant; and after I am useless, I shall go on shore at a half-pay of probably 18*s.* a day, after serving 10 years as a master attendant. But there is no scale for masters to retire upon now; they may keep me till I am tottering with one foot in the grave before they let me retire, if they choose to do so. Masters should be allowed to retire after 52 years of age.

828. Then you retire as a post captain, do you not?—I retire at 65 as a post captain.

829. Do you think that a master attendant should be appointed for a limited time?—I think a master attendant should be appointed as long as the Lords of the Admiralty think he can serve; that is, as long as there is any hope of his being useful to the service. At the age to which they serve now, namely 65, some men may be fit to do their duty; they certainly might be sages at that time, but they cannot be very active, except it is an extraordinary case; but still if they could serve till 70 with usefulness to their country, and they like it, they might serve. I do not think that masters' attendant should be removed to make way for others so much as has been spoken about, because we cannot all be masters' attendant. My only chance of it is that I am now in the Royal yacht, and their Lordships may see fit to appoint me at some future time; but it is well known that we cannot all be masters' attendant, the chances are so very few, as there are only 13 amongst the whole class to which we can look forward.

830. Do you think it would be satisfactory to the masters that those who hold such appointments as you have now, should have the rank of commander?—Of course they would be glad and proud of any rank better than the present, and they would endeavour to do their duty in it. In my case it is rather extraordinary that formerly the captain and master of the yacht were the principal officers, but now the captain is the principal officer, and the master, who certainly is the most responsible officer next to the captain for the safety of the Queen and Royal Family, and everybody else on board, is an inferior officer.

831. There are a number of officers employed in the command of the store ships, sailing ships, and stationary ships, besides yachts; if they held the rank of commander do not you think that those would be appointments which would be much looked forward to by the masters?—They would be very pleased with them indeed; and I might say that in the case generally of masters in employment, there should be a roster kept of the masters when upon half-pay. This roster should be kept with great strictness, and as their turns come for an appointment they should go to that appointment. If they have command of store ships or other vessels, they should hold them for three or five years, or whatever period the Admiralty may choose, and then they should make way for others. By that mode many of the officers now in charge of those vessels would give place to others, and they would become much better local pilots than they possibly can be now, because there is no chance for a master, unless he chooses to go upon his own private means, knowing the interior waters of England in any way; he never goes near them in a man-of-war. I suppose the "Dauntless" is the only man-of-war that has been as far up as Southampton Water for many years, excepting the smaller vessels. There is the case of a very valuable officer at Sheerness, who has become pilot for ships between Sheerness and the Downs. If that officer had been changed after three years, the next one that went there would acquire the same knowledge, and so on with the next one, so that we should have half a dozen good pilots and masters to come from Sheerness and the river to the Downs, instead of only one.

832. Is there any other suggestion which you would wish to make to the Committee?—I think that in the matter of store money, which some of the masters have, the allowance for the stores should be paid in proportion to the value of the articles under their charge.

[The Witness withdrew.

Henry Augustus Moriarty, Esq., R.N., Examined.

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833. What is your rank and seniority in Her Majesty's Navy?—Master, of the 20th of June 1844.

834. Will you state shortly your length of service as second master in charge, and master, and also the names of the ships and the stations on which you have served?—I was second master from March 1837, and second master in charge about 16 months in 1841 and 1842, and acting master about eight months during 1843; making seven years as second master and acting master. I entered the Navy in December 1829; and I have served about 15 years as confirmed master. The "North Star" was the first vessel I served in, in the West Indies; then in the "Sapphire," also in the West Indies; then in the "Orestes," the "Thunderer," the "Caledonia," the "Tyne," the "Ganges," the "Alecto," the "Queen," the "Geyser," the "Hecate," the "Queen," the "Formidable," and the "Medea." In all those ships I served in the Mediterranean; then in the "Devastation" in South America and the coast of Africa; in the "Penelope" on the coast of Africa, in the "Retribution" on the Channel station (and the Cape of Good Hope for a short time); in the "Duke of Wellington," on particular service; in the "Agamemnon," when laying the Atlantic cable; the Royal Albert," the "Princess Royal," and the "Revenge."

835. We are informed that discontent exists amongst the masters in the Navy; will you state what you believe to be the grounds of that discontent?—The principal thing is our junior and inferior position as we advance in age. The question with regard to discontent is a very general one. I have stated the primary cause, which might be enlarged upon very considerably. The last circular which came out, placed the masters juniors to the paymasters and engineers. That I look upon as a great cause of complaint. Also a scale of first-class full pay exists, which I shall enter, if I continue serving without the loss of a day, on the 29th of August 1870.

836. What age would you then be?—Fifty-five and a quarter.

837. What measures would, in your opinion, tend to remove the discontent which exists?—Abolishing the class.

838. To whom, then, should the special duties now performed by the master be entrusted?—To some officer having the distinct duty to perform, but with advanced rank; and they should be a branch of the one profession, and not a separate growth entirely, as the masters now are.

839. Would you have an entry into the service as masters' assistants, or anything as a substitute for it?—No. I think that the training which the masters' assistants receive is not desirable.

840. You say that you would do away with the class of masters altogether?—I think it would be desirable, that is to say, as they are at present constituted.

841. Would you give a lieutenant the duties to perform which are now performed by the master?—Yes; but I think that want of experience would be an objection in a large ship; I think that the country could afford a superior grade for that important duty.

842. What do you mean by a superior grade?—An additional commander. I would have two commanders on board of the large ships; a navigating lieutenant in frigates.

843. How would you have that officer educated?—The same as other lieutenants, to be chosen from those who may pass a better examination, and he himself desiring it, as in the case with the gunnery lieutenants, and there should be inducements held out to him, both in pay and promotion; but it should be in the regular line; that he should command the ship, and so forth, the same as a gunnery lieutenant now does.

844. You would have promotion from the navigating line on to the general line?—Yes.

845. When he had once passed his examination in that line, would you keep him to that line?—No; I think he might fall back into the other whenever he or the service required it. It would be desirable, I think, to keep men in it for a certain period; because they would gain experience, and the service would be benefited by their remaining in it; the division of labour must produce greater efficiency.

846. What do you mean by the division of labour?—By devoting one man to navigation, but without making him of a different class entirely. If you could induce a man to navigate a ship for three or four commissions consecutively, he would be much more efficient at the end of that time than he would be at first, but it should be without depriving him of advancement in his profession.

847. Do you think that an officer would prefer remaining in that line to the other?—I should think not; but there are many circumstances which render it an agreeable duty, and inducements could always be held out by the service, in the shape of promotion and pay, if there was a deficiency of volunteers.

848. Supposing the class not to be done away with, can you suggest any improvement in it, as it now stands?—Yes.

849. Would you state what you would propose, in the event of the class being still retained?—I would commence with a moderate period of servitude and giving adequate rank to the present men; I would put a moderate limit to the servitude, but with regard to rank, most positively I would alter that. No amount of money will make us reconciled to our present junior position; for our being subordinate to a young man of 20 years of age is a thing which we never shall feel reconciled to.

850. Still that has been the case as long as you have been at sea with the junior masters and lieutenants, has it not?—Yes.

851. As regards the juniors, there has been no alteration while you have been in the service, has there?—No, nor with regard to the seniors either; it has been always the same. The period of time that we are to serve, 25 years, becomes almost an absurdity; for instance, I cannot myself touch it. It requires eight and a half years more before I can be entitled to the first day's full pay upon the highest scale. The next thing, the allowance of four years, second master's time, is a crooked question, and many men have lost a great deal of time as acting masters, and, I think, that acting time ought to be *bonâ fide* considered as the time of a master, because a man has the same responsibilities and the same position.

852. Instead of four years only counting, you think

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think that all the time should count?—I would keep the two questions separate; many of those who were serving on foreign stations prior to 1847, lose their second masters' time. The acting time, I think, should be a consideration of itself. All acting time does not count for retirement or for rank, at present it does count for full-pay and half-pay. Then the training of masters' assistants, I think, might be improved by their admission to the "Britannia" and as second masters at the college, and most certainly as masters at the college whenever they please, and the service will admit of it. I applied to the Admiralty in April 1850 for admission to the college, stating at the same time that my object was solely to improve myself in mathematics, and by no means to avoid service, for being on the spot, I would be ready to join a ship at a moment's notice, if I were required; to which I received a most positive refusal. Two masters were afterwards allowed to go to the college. Mr. Blakey was one. I am not aware that other masters have since been admitted.

853. Were your services required?—No; I remained on half-pay for three or four months. The masters' assistants and second masters doing duty more on deck would be desirable; but I think I need not say anything about that, because the order already exists that they should have more duty on deck than they have. With regard to rank, I forgot to mention that at the present moment we rank below the Naval Reserve men who are brought into the Navy. If they were called out to-morrow I should take my place in a boat astern of the mate of a merchant ship who has become a lieutenant in the Naval Reserve.

854. What is chiefly felt in regard to rank is with reference to the civilians, is it not?—No, not that alone, but with reference to the executive officers also.

855. That, you say, has not changed since you have been in the service?—No, it has not changed since I have been in the service.

856. Why should that be particularly felt at this moment?—I am sorry to say that it is not merely at this moment. I have felt it for the last 15 years, certainly. As a young man I had no right to feel it, when I was equally as young as a lieutenant, but as I get older I feel it.

857. Still you, as an old master, are situated with regard to lieutenants exactly as the old masters were formerly?—Yes, I believe so, and they frequently memorialised.

858. Do you regard the senior masters of the service who are now employed as efficient officers for the position which they occupy?—Yes, certainly.

859. They have all had great experience in that particular branch of the service, have they not?—Yes; the senior masters serving must, of course, have been weeded through several stages before they got there. The inefficient men generally fall on one side early in their career.

860. Those men, therefore, you think, should have superior rank to what they now hold?—Yes.

861. If the class were done away with altogether do you see any way of getting men of equal experience as navigators and pilots for our large ships?—Yes. I think if you held out an inducement to lieutenants to take that particular branch of the service, and ensure their promotion in a reasonable time to the rank of commander, and from that again to captain, they would take the two grades. With respect to time, if a man were required (but I think it is a long time that I am stating) to serve nine years as a lieutenant, but not debarred the chance of promotion in the interim, if he were certain of his promotion at the expiration of nine years, and certain of the next step at the expiration of six years served as a navigating commander, and then entitled to his next step to the rank of post-captain, that, I think, would be a sufficient inducement to a number of lieutenants (who have not powerful interest) to join this branch.

862. That is to say, that a lieutenant should choose which line to go into?—Yes, that he takes that line temporarily, that he comes out of the original line (there being but one description of entry), and that he falls back into it again in the shape of a post-captain; and that throughout his course he should have all the advantages of casual promotions through being engaged as senior in a ship or anything of that kind.

863. Would you award extra pay during the time of his holding those positions?—Yes.

864. Would you award pay such as a gunnery lieutenant gets?—I would make it more worthy of his acceptance than that; that is only a shilling a day extra, I believe.

865. Supposing the class were abolished, and in future we looked to lieutenants becoming navigating officers, how would you dispose of the masters, second masters, and masters' assistants now in the service?—The elder ones could wear out during the change, and the younger had better be amalgamated, otherwise it is a difficulty out of which I do not see my way clearly. The senior ones could wear out, for no one of course would advocate a sudden change.

866. You would give the senior ones rank, would you not?—Yes; I would form a new scale, and work it into shape gradually.

867. You were master of the "Duke of Wellington" flag ship, in the two successive campaigns in the Baltic, were you not?—Yes.

868. You were engaged, were you not, in the several surveys of Baro Sound and Led Sound, and in examining the channel leading to Bomarsund, prior to the attack?—Yes.

869. And you had to do with the placing of the mortar boats prior to the successful bombardment of Sweaborg?—Yes.

870. Could you have carried out those difficult duties with greater facility if you had had an opportunity of studying at the College as all the lieutenants have had?—No, I think not. I think that a proficiency in mathematics does not bear upon that subject.

871. Do they learn nothing but mathematics at the Naval College at Portsmouth?—They learn steam; and I passed a steam examination at Woolwich, which is quite as good as that.

872. I presume you mean mathematics as applied to navigation; but whatever you may mean by it, has the question of surveying nothing to do with mathematics?—Yes; I forgot the surveying part of it.

873. Was it not all a question of surveying?—I referred to the question of the placing of the mortar boats. Of course the surveying part of the duty could have been decidedly better done by a man who had studied the subject; and study at the College would have prepared for it. With regard to the placing of the mortar boats, of course it would not be of so much importance.

874. How were the mortar boats placed?—Simply

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Simply by sounding the bank in the dark, and putting them upon it.

875. Were not they placed at a certain distance from the shore?—Yes. My answer was more particularly directed to the latter part of the question. I should reverse it with regard to examining the passages, and so on.

876. Do you consider that the setting apart of a separate class as masters for navigation, has a tendency to make other officers indifferent to the art of navigating a ship?—Yes, I do.

877. Do you consider that every captain ought to be able to navigate his own ship?—I think that he should be able to do it, but not to have it imposed upon him. His other duties occupy too much of his time and attention.

878. Would you give him an assistant to aid him in doing it?—Certainly.

879. You have already stated that you think the class of masters should be abolished as a separate class. Would you not then have the whole range of the service to select your navigating officers from?—Yes.

880. Is not it fair to suppose that in selecting officers from 1,200 instead of about 200, you would be likely to get a better class of men?—Yes, most certainly you would.

881. As the service is much altered within the last 20 years, by the introduction of steam and iron into our ships, and so on, does not that render a change desirable in the class of masters; or rather, I should say, is it not desirable to give them an opportunity of getting a better education?—Yes; the size of the ships and the deviation of the compasses has greatly increased, and I think greater care is now required in the navigation of ships, and greater skill.

882. What is the training and education that a masters' assistant or a second master has at present, in order to qualify him for the important duties of master?—The masters' assistants are under the naval instructor, but the second masters are left upon their own resources; they are employed very much below, and under a great disadvantage.

883. The Committee have had it in evidence from several of your brother officers, that the second masters pass nearly the whole of their time between decks, and the masters' assistants a great part of theirs; has that been the case in your experience?—Yes; as a general rule the second masters are always below; the masters' assistants are not so much so, they are frequently placed as midshipmen of the watch and in boats, because they are too young to have charge of the decks.

884. Then is it not the case that the second masters step from having been down below between decks on to the quarter deck, to take the important charge of navigating the ship?—Yes, that is the ordinary routine.

885. Then what a master knows of pilotage and navigation, he must in some measure have got by stealth, or rather by making the most of his opportunities?—Frequently so. Of course that rule is not arbitrary, because I am an exception myself; I was never kept below. And many captains make a point of keeping the second masters on deck as much as possible, but the majority are kept below.

886. Then, at starting, do you consider that the education of a young lieutenant or of a young master has been the most advantageous to enable him to navigate a ship?—That of a young lieutenant up to day of promotion.

887. In giving that young lieutenant the same constant employment that a master has after he is promoted to the rank of master, is there any reason why he should not be as competent to navigate the ship as a master?—No; they would become equally competent.

888. I understand you to state that you consider that an officer should be set apart as a navigating officer, and that if he selected that branch, he should be kept to it?—Not compulsorily.

889. But before you would allow him to take charge of a line-of-battle ship as navigating officer, how many years would you require him to have served in that capacity in smaller ships?—At least six.

890. Are masters after six years ever promoted now to a line-of-battle ship, or rather, are they eligible for a line-of-battle ship, in six years?—Yes.

891. Are they in less?—I think a master is eligible in three years. I am not quite certain. The regulation has been altered since I passed myself.

892. I suppose when he has passed the Trinity House he is eligible for appointment?—Yes.

893. How soon can he pass the Trinity House?—I think after serving three years in a frigate or sloop.

894. If then a master, with the education and training of a second master, as you have told us, is in three years considered eligible to take charge of a line-of-battle ship, I presume that a lieutenant would be equally competent to do so?—No; that is grafting one error on to another. I do not agree that the one is competent after three years; the time is not sufficient for the requisite experience to be acquired; therefore I do not assert that it is in the other case. Three years is not sufficient for a master, and of course it is not sufficient for a lieutenant either.

895. You have stated, have you not, that nine years' service before promotion you would consider fair?—Yes, as the maximum.

896. And that then the officer should be entitled to claim his promotion?—Certainly; but there should be this important point, that he may get it sooner. He is not to be debarred from promotion for nine years, because then no man would take the appointment.

897. Is the average promotion of lieutenants less than nine years, do you think?—Yes, I think so, in the ordinary service; the Admiralty having lately given a second stripe to the eight years' men renders them conspicuous, and I see very few.

898. Would an officer make a worse captain of a ship from having had his knowledge of navigation, or from having been navigating officer for those nine years?—I think he would make a much better captain.

899. Is there anything at all in the fact of his devoting his attention specially to this duty, to disqualify him from being the captain of a ship?—I think not.

900. Do you think that he can acquire the knowledge necessary in the duties of gunnery, and other duties now usually required of lieutenants, while in that position?—He could acquire sufficient of it, I think, to conduct a ship, because he

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he would have the assistance of a gunnery lieutenant then as well as now.

901. Could you devise any other title less likely to bring the master into collision with the executive branch of the service than that of sailing captain and sailing commander?—A similarity of title would be better than as at present; for instance, supposing they were called sailing lieutenant or sailing commander; but by putting on the word "sailing lieutenant" it ignores the former proposition that the class should be abolished; therefore, I would rather say "lieutenant" and "commander," because it is the same class; there is no occasion to call it by any other title.

902. Cannot a superior rank be given them without changing their present title?—It can.

903. Can you suggest such a superior rank?—You might give a man any rank by a simple order to that effect.

904. I mean without assuming the title of captain and commander, and mixing them up with the other branch?—No, I do not see how it can be done.

905. Would first-class master or staff-master do?—No, I think that would be very undesirable.

906. If the masters of large ships had superior rank, how would you prevent the clashing of their duties with those of lieutenants?—In the same way that a flag lieutenant is frequently senior to the other lieutenants in the ship; but he does not interfere with them on that account. I have been shipmate with three masters of the fleet, for instance, who, by virtue of that appointment, stood between lieutenants and commanders; and if the commander went out of the ship they did not interfere with the lowering of boats or anything else; but if the ship had been on fire or anything of that sort, no doubt the master of the fleet would have stepped out then as acting commander of the ship, or in case of the appearance of an enemy, or of a ship going upon a rock. In all those cases the officer is responsible to his captain on his return.

907. Supposing the master of a large ship to hold superior rank to a lieutenant, in the event of the captain's absence would the master take the command?—I can see no objection to it. I can see a great many reasons why he should do so. In case of a gale, for instance, I have known, in my own experience, a captain offer not to go on shore because he thought I was going, and that we should not both leave the ship; that was voluntarily placing me next to himself, because he wanted me to attend to the letting-go of the sheet-anchor in his absence.

908. You would not interfere with the ordinary duties of the other officers?—No.

909. How would you define the duties?—Each lieutenant would have his own peculiar duty to do. With regard to the warrant officers, for instance, who are now subordinate to the master, the master does not think of telling the carpenter to leave off painting if the commander's back is turned.

910. Still, being in command of the ship, as you say, he must necessarily interfere, must he not?—He would interfere most advantageously in the case of an action. I think, as a master would be on deck during the action, before the captain or commander is wounded, he must be in possession of the captain's plans, as they would be all working together were they sensible men, and the lieutenant who came up from below (being himself a sensible man) would place himself under the tuition of the master for ten minutes, because he has come from the lower deck, and he knows nothing of the attempts that have been made to board, &c., which have been partially or altogether frustrated, or what was the design of the captain at the moment when he was knocked over; whereas the master knows it all, and if he adds to that a greater amount of experience, I think he is the better man to conduct the action.

911. Would you restrict his command to the time of action, or would you have him take the command at all times before the lieutenants?—I would only have him interfere with the lieutenants (according to his seniority) on an emergency. I do not think it would be necessary for him to interfere with lowering boats, and making up liberty lists, and all those ordinary routine duties; and he would be responsible to his captain for interfering when he thought it necessary.

912. You have had great experience in ships of the large class; do you see any way to prevent clashing in that case?—Yes; I think the simple fact of the captain being over all would keep them all quiet.

913. In the event of the captain's absence how would it be?—On his return, of course, a complaint would be made to him of any officer unduly interfering, and, of course, he would be on the spot and settle it, and there would be no ill feeling when all of the same class; but if he interferes when it is not necessary in the detail duties belonging to another man, he would be ordered not to do it again. I think the gunnery lieutenant is similarly situated.

914. Do not you think that different captains would decide differently?—It is very likely, but not materially, and it would depend on the persons that they had with them. Perhaps one man would carry out the detail work better than another; some would do mischief; but the captain would decide that. The gunnery lieutenant is now generally junior to several of the others; but if they are left in temporary command of the ship they do not upset the gunnery lieutenant's plans; but if they did, if they ordered the drills to break up, or change them, it would be the gunnery lieutenant's duty to obey; he would appeal to his captain in the morning for having been interfered with.

915. Still if the gunnery lieutenant were left as the senior lieutenant on board, he would carry on all the duties of the senior executive officer; whereas, in the master's case, you would hold it to be wholly different?—Yes, were it is to be a separate duty.

916. So that a gunnery lieutenant and a master in that case, could hardly be compared together?—I would make that distinction, so as to keep the man who had the navigation more to himself.

917. With regard to the officers of the watch, have you felt the inconvenience of not being a superior officer?—No; on the contrary, I should not think of interfering with the officers of the watch. I should think it would be wrong, whatever my rank might be. I should treat a mate in precisely the same way as I should a senior lieutenant; I would request him, if necessary, to inform the captain. In an emergency I might sing out "port" or "starboard," and "run down

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and tell the captain;" but I would save the ship in the meantime.

918. You mentioned a very particular instance with respect to action, that the master should assume the command after the captain or commander may have been killed; but after the action, when the ordinary duties of the ship were resumed, upon whom should the command then devolve?—He should retain command of her till he falls in with a superior officer; with his admiral or other authority.

919. Who would do the master's duty during the remainder of the action?—He would do it himself.

920. You have stated that it would be advantageous to the service to abolish the class of masters; as their duties are now well performed, what advantage would accrue to the service by abolishing the class?—The other part of the service would devote themselves more to navigation and rigging and stores, and all those duties which are now considered as more peculiarly the master's.

921. You think that a more general knowledge of the profession would be diffused amongst the other branches?—Yes, in those points.

922. Is the skill in pilotage, and the facilities for laying the vessels' positions off on the charts, one of the advantages which masters now possess over the ordinary run of executive officers?—Yes.

923. Many officers could perform the mere navigation and making the land?—Yes, the theory of navigation is easily acquired; but the allowances, and so forth, in bad weather, become more complicated.

924. Supposing the present class of masters to be done away with, would you have a navigating officer with the same responsibility that the master has now?—Yes, certainly. The entire responsibility of the navigation, subordinate to the captain, should be the same. I mean that the two should have responsibility; the captain should have the primary responsibility, and the navigating officer the secondary responsibility, which at present exists.

925. What age are you now?—Forty-seven.

926. Masters' attendants under their present regulations are to hold their situations until 65; do you think, in justice to the senior masters on the list at present, that they ought to be appointed for a certain number of years?—I think the age is too great, both with regard to the people who are coming on, and to the service. I think that 60 years is quite old enough for a master attendant, and I would be very glad to be turned out myself at that age. I am now 47, and I certainly could not serve more than 13 years from the present.

927. You think the service will be benefited thereby?—Yes.

928. Do you think the service would be benefited by the appointment of master attendants being limited to any particular time?—I think it should be limited to 10 years, and the age of 60.

929. Do you say that with regard to the good of the service, or to the good of the master?—For the good of the service.

930. Do you think that the duties would be more efficiently performed in that case?—Yes, I do think so. A man of 60 years appears very aged if he has spent the greater part of his life at sea. It is quite exceptional for strength and vigour to be retained up to 65.

931. If that were done it would soon considerably increase the number of masters retiring with captain's rank, would it not?—Not a great number, but there would be some increase. I am not at all well informed upon that.

932. There are many masters in command of store ships and yachts, and commands of that description; if they were given the rank of commander, would not those commands then be looked forward to by the masters in general as a thing to hope for?—Yes, I think they would; but the yachts have been given to young men hitherto when promoted, and they have retained them for life; such as the "Fairy," the "Elfin," and the "Black Eagle."

933. Do you think it would be better that they should be appointed for a limited time?—I am not at all clear upon that point. They perform their duty better by retaining it, no doubt.

934. Have you been in company with foreign men-of-war?—With the French and Americans a little.

935. Have you had an opportunity of hearing what they think of their system of navigating as compared with ours?—I never heard their opinion of it. My opinion would be that the French system is very badly conducted; that the navigating part is performed by juniors and irresponsible men.

936. Whoever may be the captain's assistant in navigating, you look upon it as important that in large ships, at all events, he should have experience in that particular line?—Yes, I think that to be very desirable.

937. That experience the masters at present get by being constantly employed, do they not?—Yes.

938. Would not the great difficulty, if the class were abolished and navigating lieutenants substituted, be to get men really experienced in that branch?—You would have to give them encouragement to remain sufficiently long in it to gain that experience.

939. You would not make it compulsory that they should remain there?—No; I think that would be objectionable, with a view to the good of the service. If a man disliked it he would do better by going as gunnery lieutenant or keeping watch.

940. As it is necessary to have navigating officers, it would be necessary, would it not, to make it compulsory if there were not enough volunteers for the work?—No, I think that you should hold out more inducement.

941. I say if there were not enough volunteers?—I think it ought not to be compulsory.

942. Then you would make the advantages with regard to pay so great as to induce men to join?—Certainly, both with regard to pay and promotion; otherwise you would fall back into the same state of things that exist now.

943. The promotion, as I understand you, is to go on the same as if they were in the other branch?—Yes; the same as if they were in the other branch, but with a certainty of getting it as a reward for long service which they have not now. A lieutenant may serve 20 years, but he is not certain that he may be made a commander at all.

944. Is there anything else that you could suggest to the Committee on the subject of the present inquiry?—No, I do not think of anything else at present.

[The Witness withdrew.

Adjourned to Monday next, 12 o'clock.

Monday, 24*th February* 1862.

PRESENT:

Rear Admiral the Hon. C. G. J. B. Elliot, C. B.
Captain Washington, F. R. S.
Captain George Goldsmith, C. B.
Captain Charles Henry May.
Commander Cornelius T. A. Noddall.

Rear-Admiral the Hon. CHARLES G. J. B. ELLIOT, C. B., in the Chair.

Captain ARTHUR FORBES, R. N., Examined.

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945. YOU are a Captain in the Navy, are you not ?—Yes.

946. In what ships have you served as first-lieutenant, commander, and captain ?—I served in the "Magicienne" as first-lieutenant; in the "Impregnable" and "Illustrious" as commander; and in the "Calypso," the "Curacoa," and the "Renown," as captain.

947. Are you aware that discontent exists among the masters in the Royal Navy with respect to their position ?—No.

948 Have you heard complaints of their not holding sufficient relative rank with other officers? —I never heard such a complaint.

949. Do you think they have any grounds for discontent with reference to their rank ?—I think it would be advisable if a scheme could be devised by which the senior master's position would be raised; but I see some difficulties in the way of it.

950. Will you state what difficulties you refer to ?—Giving masters superior rank to the lieutenants would, according to the present system, give them command of the ship in the event of the captain and commander being absent or killed in action; and from the custom of the service, the masters not attending to or being cognizant of the general discipline, gunnery, and other duties of the ship, and not being so much in the habit of actively commanding the men, they would not be so well calculated to take command of a ship as the senior executive officer.

951. If they had superior rank to the lieutenants, you would prefer that they should not perform the ordinary executive work of the ship? —Just so.

952. Do you think if the master of a large ship had superior rank to the lieutenant, they would clash in the ordinary duties of the ship even when the commander was on board ?—The present system must, of course, be entirely changed, so that that should not happen. I confess that I have not given my attention to the subject, and therefore am unable to suggest any plan; but it is very possible that such a scheme might be devised.

953. Have you ever heard that the masters are discontented with their designation, or title, or that they object to it ?—No, I have not heard so.

954. The masters appear to have advantages over their equals in the executive branch as regards pay and half-pay; do you think that those advantages have been given as a set-off against the limit placed upon their rank ?—I should not think that their pay had been given to compensate for deficiency of rank, but as the proper pay for their long servitude and experience in their profession.

955. Do you think it would be beneficial for Her Majesty's Naval Service in general that the classes of masters, second masters, and masters' assistants should be done away with as a separate branch of the service ?—No, I do not.

956. Can you suggest any alterations which would improve the present master class ?—I think that if any scheme could be devised for giving them higher rank and greater advantages, it would be beneficial to the service.

957. Would you recommend an advance in rank by servitude, or would you promote them after service ?—I should prefer that they continued in their line with advanced rank, so as to retain the best masters in the service.

958. So that promotion, if there were any, should be on to their own line ?—Precisely so.

959. Have the masters who have served with you, generally been efficient useful men ?—Yes, invariably so.

960. In the large ships which you have lately commanded, they have been men of great experience, have they not ?—Yes.

961. Do you look upon it as hard upon those old masters that they should be subordinate to the young lieutenants ?—I do.

962. You would wish to see them advanced in rank without taking the lieutenants' ordinary duties as an executive officer ?—I should wish to see them advanced in rank if any scheme could be devised for doing so without necessitating their taking the command over the lieutenants.

963. That is to stay, you would wish them to be more on the footing of staff officers than they are at present ?—Just so.

964. Do you know how masters rank in command according to the new Regulations ?—The new Regulations were not published when my last ship was paid off, and I have not seen them.

965. At pages 27 and 28 of the Queen's Regulations there is this passage: "Masters shall rank with lieutenants according to the dates of their

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their respective commissions; but when the commissions are of the same date lieutenants shall take precedence of masters. Notwithstanding the rank hereby given to masters, it is Her Majesty's pleasure that they shall in all matters of command, and in all the details relating to the duties of the fleet and to the discipline and interior economy of Her Majesty's ships be held to be subject to the authority of lieutenants of whatever seniority they may be." Do you think that will act well, or that they should be considered still more in the light of staff officers?—I think it would be better to put them more in the light of staff officers, but it seems to me that there is some little difficulty in carrying out those Regulations.

966. Do you see any better way of giving them the rank without giving them the command?—I have not given my attention to the subject, but it appears to me very possible to devise a plan as you have suggested for giving them rank by means of something analogous to what may be called a staff appointment.

967. Have you found the duties of masters to clash with those of lieutenants?—No. In a small ship a master necessarily has to do some of the general work of the discipline of the ship; but in a large ship his duties are totally separate, and also in a large ship there is almost always a superior officer on board in the person of the commander.

968. It has been suggested that the rank of commander might be given to a master, but that he should always be considered subordinate to the commanding officer; do you think that system would work well?—Yes. I think that masters, from their long experience and great utility, should certainly hold higher rank in large ships than they at present do.

969. What has been the nature of the duties assigned to the second masters and masters' assistants on board the ships in which you have served?—They are generally employed in charge of decks and otherwise below. Orders have of late years been issued to give them more opportunities of acquiring experience in their profession, but great difficulty has attended this, inasmuch as there have been few or no sub-lieutenants in any ships; and as it was not desirable to put the midshipmen and cadets to those duties, and it was absolutely necessary to put somebody there, both the second masters and masters' assistants have been much more employed below than they should be. Indeed, it has often appeared to me extraordinary how masters, on reaching that rank, could have acquired the necessary knowledge of their profession.

970. Could you suggest anything to the Committee to improve the education of the masters' assistants and second masters?—I know of no other plan than that they should attend more to the duties of navigation and seamanship than they now do. This might, perhaps, be done by their having a portion of their service in vessels particularly adapted for instruction.

971. Do you mean before they join the service, or subsequently?—I mean during their service.

972. Would you have such vessels on foreign stations?—If it could be managed, I should wish them to receive this instruction on foreign as well as on home stations, but perhaps there might be great difficulties in the way of that.

973. Have you had reason to be satisfied with the abilities of the masters' assistants and second masters that you have met with lately?—Not always; generally not so.

974. Or with respect to their character?—No, not always in that respect either.

975. Have you known boys who have come from Greenwich and New Cross schools?—I think that some I have known came from these schools, but I cannot speak with certainty.

976. Supposing the masters to be done away with as a class, do you think it would answer to give the navigating duties to lieutenants or other officers in the executive branch?—No; I do not think it would, and for this reason: that for a master of a line-of-battle ship you require a person of great experience, and a thorough knowledge of his profession, which I do not think could be gained at the age at which a lieutenant still holds that rank. If a lieutenant who had acquired sufficient knowledge to become a good master of a line-of-battle ship was not promoted above that rank, he would be unduly kept back in his profession. Of the average lieutenants of average service that I have met with, very few would be equal to the duties of a master of a line-of-battle ship.

977. Supposing that a lieutenant passed a special examination for a master's duty, and was appointed to that duty as a gunnery lieutenant is appointed to gunnery, do you think that that plan might answer?—It would answer, certainly, if you could hold out sufficient inducement to him to continue in that line; but it appears to me that if he were a person of more than ordinary capabilities, he would naturally look to his promotion in the regular way, and thus leave the line which he had embarked in.

978. Supposing he were given to understand that he might get promotion to the rank of commander, with the duties of navigating commander, as he before had of being navigating lieutenant, and that he might further rise to be post-captain and admiral, do you think that in that case such a system would answer?—I think that, under those circumstances, it might answer. The only objection appears to me to be, that you would have a man, with the rank of post-captain, who had not been brought up so as to be conversant with the drills and manifold duties of the present active executive branch.

979. Do you think it necessary to have a person of equal knowledge and experience to assist the captain, as at present?—I do. It is not perhaps absolutely necessary, but I think it is expedient.

980. Amongst the lieutenants who have served with you, have you not found many to whom you would entrust the navigation of a ship from port to port?—Certainly.

981. But you look to something more in a master than mere navigation, do you not?—I look to something more than the mere habit of navigation from port to port. There is an advantage in a person being long conversant with the duty and the habits of observing and piloting, noticing land, and attending to other matters which are now chiefly arranged in consultation between the captain and the master.

982. Do you think that for the good of the service, the captain should have more responsibility with regard to navigation thrown upon him than he has at present?—He has all there responsibility at present, although the master shares it. I do not think it would be desirable that

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that the captain should have more. I have been for years in the habit of navigating the ship myself, but that has been under circumstances when I was able to give my time very much to the subject. I have since been under circumstances where it would have been almost impossible from having so many other duties to perform, in sailing in a fleet, to have given sufficient attention to the navigation of the ship.

983. Do you feel that when attached to a fleet or a squadron, your general duties would prevent your attending sufficiently to the navigation, if you had anybody of less assistance to you than the present master?—Just so; that is what I meant to express.

984. I think you have stated that you consider the senior masters in the service to form a valuable body of men?—Yes.

985. Is not the key to their competency their being constantly employed on active service?—Certainly.

986. You have stated, have you not, that there is nothing in the education and training of either masters' assistants or second masters that qualifies them for taking charge of a ship, when they are promoted to the rank of masters?—I have often wondered how they have been able to acquire the knowledge which I have found them to possess, knowing how they are brought up in the younger ranks of the service.

987. That being the case, might it not be desirable for the general benefit of the service, that we should select the navigating officers from a larger area; that is to say, from the lieutenants as well as from the young masters, a class of navigating officers, seeing that at present there are about 200 or 300 second masters to select from, whereas, if you took all the lieutenants, there would be fully 1,200 to select from?—The larger area of selection would of course give greater latitude of choice.

988. I think we quite agree that the best men that can be found in the service should be selected for the important duty of navigating and piloting a ship, and of advising the captain when sailing in a fleet, that can be found in the service?—Certainly.

989. Should we not then offer every advantage to those officers to volunteer for that service?—Certainly.

990. Do you consider that it would render an officer less competent to take charge of a ship as captain, if he devoted nine years say, of his life to navigating a ship?—The increased knowledge of navigation which he would possess, would of course be a benefit rather than a loss; but I think that an officer not brought up with the other officers in the habits of attending to the manifold questions of discipline and drill now enforced in the service, would be deficient in those matters as a captain.

991. Do you consider that the sailing duties of such an officer would occupy so much time that he could not also acquire a knowledge of the other usual duties of an officer?—No. I think he might acquire them, but I do not see how he could be in the habit of performing all the duties now performed by lieutenants, and at the same time perform the duties of navigating the ship.

992. A great many officers rise to the rank of captain without ever having been commanders of line-of-battle ships or first lieutenants of ships; therefore such a man might be quite on a par, might he not, with those junior officers who rise up to be captains?—Yes; but they learn their drills and other matters of that sort as midshipmen.

993. But this officer would not be selected, would he, till he becomes a lieutenant, as you are of opinion that it might be for the benefit of the service that at the time young men become young masters, and that midshipmen become young lieutenants you should select from the whole body of men the most competent to navigate the ships?—I originally understood the question to refer to officers starting from the rank of lieutenant.

994. You are of opinion, are you not, with many others, that till an officer has passed and has become a master, or has become a lieutenant, you can hardly judge what his qualifications may be?—Just so.

995. That is the time that men begin to show themselves in all branches of life, is it not?—Yes.

996. Then you would prefer, would you not, to select from the whole body the most competent of those who have shown a certain turn for navigating?—It appears to me that that scheme would be advantageous; of course, I need not say that it would be necessary to hold out sufficient inducements to them to enter that line.

997. But suppose they were offered to be promoted to the rank of commander at the end of nine years, which, I believe is rather less than the average servitude of lieutenants, do you think that that would be a fair inducement?—Perhaps it would. I do not feel sure upon the subject, although that may be about the average time; still, probably most people expect to get promoted younger.

998. Do you consider a master, of six years' standing, competent to take charge of a line-of-battle ship?—That is a difficult question to answer without ascertaining what his experience may have been. I think if a master has served six years in a ship, and has been a great deal at sea he would be perfectly competent; but a good part of that time ought to be in a ship of considerable size—a large frigate, or in what would give him equal experience of that sort.

999. Since the establishment of a first-class steam reserve, a great deal of the duties that formerly fell upon the master now fall upon the dockyard, do they not—such as the stowage and rigging of a ship?—Yes.

1000. That being the case, the chief qualifications that appear now to be required of a master, are navigation, pilotage, and seamanship, are they not?—Navigation and pilotage, and the knowledge of handling a ship under difficult circumstances. One of his most important duties is the knowledge of placing a ship in a position required; but perhaps that is included under the head of seamanship.

1001. I think you said you were distinctly of opinion that the present education and training of second masters is not what it should be for the responsible duties they have to perform?—I do not think it is.

1002. And you think it would be desirable it should be changed, and that they should have the opportunities of gaining the information that is required?—Yes.

1003. Do you think it would be beneficial for them if they received the same instruction as the cadets on board the "Britannia" do?—It would be beneficial, as all instruction must be beneficial;

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but I do not know that it would particularly lead them to excellence in their peculiar line.

1004. Would you give the second masters the same opportunities of going to the college as sub-lieutenants have?—Yes. I see no objection to it; but of course the desirability of their being very much at sea must not be lost sight of.

1005. Would not it be desirable that both the second masters and the masters' assistants should be obliged to keep watch at sea more frequently than they generally do?—Yes; in both cases; but I should trust more to their acquiring a knowledge of their duties by special instruction in vessels adapted for that purpose.

1006. As it is the master's duty to conn a ship in action and take the command, in the event of the captain and commander being killed, do you think that the master could relinquish that duty and take the command of the ship with benefit to the result of the action?—I think that the master, who is more in the habit of steering and attending to the motions of the ship, would be the best person to have them under his control at a time of so much importance and when the ship moves so rapidly as a ship under steam will do, and therefore it is not expedient that he should leave the conn.

1007. Do you think any man unaccustomed to command, and who perhaps never kept watch as an officer of the watch, could perform the work of a commanding officer efficiently?—I do not think he would fulfil the whole of the duties advantageously.

1008. Do you think that two officers holding the rank of commander in line-of-battle ships would interfere with each other?—There are already by the late regulations in many ships more than one officer with the rank of commander (I allude to the surgeons), and I do not think it would work well without it were distinctly laid down that the real commander of the ship should have in every case the superiority in command; I see no difficulty if it were so laid down.

1009. As it is highly desirable that any person who may become a commanding officer hereafter should know the whole of the interior arrangements and economy of ships, do you consider that midshipmen should take their turns in the orlop decks and holds?—I think it is right and advantageous that they should learn the stowage and every part of the arrangement and equipment of a ship; but I think, except for a short time, which would be sufficient to learn the arrangement of the holds and tiers, they are better employed in active duties on deck, and in other instruction.

1010. On the whole, which do you recommend, to improve the position of the masters and give them rank, and give masters' assistants and second masters a better education for the duties which they will have to perform; or to bring up navigating officers from the lieutenants?—I have not hitherto given my mind to the consideration of the subject; but it appears to me, upon the whole, desirable to retain the present system and keep the lines apart; perhaps, on further reflection, I might change this opinion.

1011. Do you consider continuous sea service essential to ensure the ability of a master?—Certainly.

1012. Would you like to have a master appointed to a large sea-going ship under your command, who had been during the preceding five years unemployed?—I should prefer an officer who had been more recently employed; but I can conceive a man being perfectly competent for such a position by former knowledge which he may well retain after five years spent on shore.

1013. The denominations of different callings are almost invariably expressive in all professions and trades of their special duties; do you think that the title of master in any way is expressive of professional acquirements and position in Her Majesty's service?—Certainly not.

1014. The majority of the masters are adverse to their present title; do you think it a suitable one?—No; I think if it could be changed it would be very expedient.

1015. Could you suggest a better title for the body?—I have not thought upon the subject; but I think it very possible to choose some new title by which to call them.

1016. Have you any further suggestions that you could offer the Committee with regard to this inquiry?—I have nothing to add, but that it has always appeared to me that the masters are such a valuable class of officers, that they do not rise sufficiently to the more advantageous positions in the service.

[The Witness withdrew.

Captain EDWARD G. FANSHAWE, R.N., Examined.

Capt. *E. G. Fanshawe*, R.N.

1017. YOU are a Captain in the Royal Navy, are you not?—Yes.

1018. Are you holding a command at present?—Yes; I am Captain Superintendent of Chatham Dockyard.

1019. In what ships have you served as first lieutenant, commander, and captain, and for what periods?—I served as first lieutenant in the "Daphne" for nearly two years; as commander in the "Cruiser" brig for about 20 months; and as captain for something more than 10 years in the "Daphne," the "Cossack," the "Hastings," the "Centurion," the "Trafalgar," and the "Wellesley."

1020. Are you aware that discontent exists amongst the masters in the Royal Navy, caused by a feeling that they do not hold sufficient relative rank with other officers?—I should say that there was a feeling of discontent caused by their social position; I am not aware that it arises from any wish to be paid higher, or to rank as commanders instead of lieutenants. My impression would be, that it was rather from their social position.

1021. Do you think that they have reasonable grounds for discontent on that score?—Not in one sense for discontent; but I think the reason of their being more discontented now than they used to be is, that formerly young men of not very high social position, who wished to elevate themselves, thought it a great thing (and it was the best thing they could do) to come into the naval service. Now that the merchant service has so very much improved, in the higher branch of it, and the great steam lines have been established, I think they feel that they are not in so good a position, as compared with the merchant service, as formerly, and that their position might be better, perhaps, elsewhere.

1022. Are you aware of any other complaints?—No;

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—No; I am not; it has not happened to me to hear masters make complaints. Amongst those masters that I have been with, I have now and then seen it crop out, as it were, that they do not like their social position, but I am not aware of their having any real grievance; it is more a feeling, I think, amounting perhaps to a discontent with their position, but not any substantive grievance beyond that that I know of.

1023. What remedies would you propose for that state of things?—I think, considering their position, which I have just stated, they have had certain grounds for discontent on the one hand, and considering the education which is now given to naval officers on the other, and the nature of the examination that they are called upon to pass, and the actual knowledge they have when they do pass, I should propose that the regular naval service should do the masters' duty altogether, and that the masters should cease to exist as a separate class. I think now, taking the service as it is, that they are what might be called an unnecessary excrescence upon the service; it was not the case in olden times, but it is so now. I think that if some such encouragement as is given to a certain extent to officers who take the line of first lieutenants, and in a certain less degree to those who take the line of gunnery lieutenants were given, you might very well, without any difficulty whatever, get those young men whose particular tastes lead them to it, of which there are a good number, to do the duty which is now done by the master in a ship. And I think it would be an improvement to the general tone of the naval service to do so, for we have, perhaps, neglected that duty of navigation, and I do not think it is quite creditable to us, the little that we care or know about it. I think it would benefit the service; it would give an interest to another very important element of a naval officer's duty, which now, generally speaking, unless it happens to be his taste, he has no interest in whatever; that would be my feeling on the subject.

1024. Whom would you bring up for the duties now performed by the master, or in what way would you provide a substitute for the master?—I think that one of the lieutenants of the ship might perform the duties; I should not wish to take a junior lieutenant, because there is a degree of seamanship required in a master, particularly when you are near the shore, or when in a fleet; so that it would be better to have somebody who had been some years a lieutenant; but I know no reason why a lieutenant, who has been for some years a lieutenant, and who is qualified by possessing whatever might be considered a proper qualification in his examination, should not do every duty that is done by a master now; in fact, I think he would do it better than a great many masters. The master of a line-of-battle ship is sometimes an elderly man; and I can say, from my own personal experience, that he sometimes breaks down when it comes to the push. Having been myself a captain of different line-of-battle ships for some years, I have had a good many masters under me, some one or two of them very superior men, whom I would sooner have than almost any body beside; but, speaking generally, I would very much rather have taken a lieutenant out of any line-of-battle ship that I have been in, had there been one trained; and with the sort of encouragement that such a person would have had, had there been an opening, he would have done the duty just as well as the master. There are certain things that a master gets more familiar with, such as making the land and judging of the land, which, I think, a young lieutenant might acquire. I do not mean taking a person immediately from his examination, but I do not know why the second lieutenant of a line-of-battle ship, if he had been encouraged and would receive a certain reward for doing this duty, should not obtain that knowledge.

1025. You would mean something like the case of a gunnery lieutenant?—Something analogous to it, but not quite so, because a gunnery lieutenant you encourage to teach other people, whereas a master is a person that is not expected to teach other people, but to take a highly responsible position himself. Therefore it is not quite the same thing, but something of the same sort. I think the duty would be as well done, and that you would simplify very much the naval service, and introduce an element of interest in the navigation of the ships, which does not exist now to any great extent. A lieutenant or captain may have a fancy for navigation, but speaking generally, after they have passed their examinations, as far as I have observed, the larger proportion of them do not care any more about it. That consideration, of course, is secondary to the object of getting the work done, but I believe that the work would be done quite as well.

1026. Do you think you would get officers of sufficient experience for the large ships, where now you have a master of great experience?—Yes; I think so. I have been in a large ship, where I would infinitely rather have had any tolerable lieutenant than the master to assist me in piloting and navigating the ship. I do not mean in pilot waters, but I mean in taking charge of the ship near the land. In the case I have referred to, the master had a very good reputation. I knew well that he had been in the Pacific before, and I had been over the same ground. He had been over very difficult ground for a master, and had done his work very well; but at the time I speak of his nerves were gone, and if he had been in a smaller ship he would have done very much better. I do not think it follows necessarily that by having men who have been in that position for several years, they are therefore fitter to be placed in larger ships than they were at first. There are some things in a fleet that no captain can help doing by himself; but I think where you are coming to anchor with a fleet, one person cannot do it all, and then, if the master happen to be a man of nerve and a seaman, it is a great thing to have him at the compass, to see the exact place where the ship should go, while the captain is looking after the speed of the ship, and so on. A young lieutenant could not do that; but a person in the ordinary position of a second lieutenant, if his attention had been called to it by proper encouragements, could do the duty as well as the master.

1027. You would like to have in that case a lieutenant of considerable experience?—Yes. I should not like to see a young lieutenant, for this reason, that whenever a ship is in any critical position, whether it is near the land or whether it is in the fleet at night taken aback, or performing any evolution, when the master comes on deck he should bring a considerable amount of seamanship on deck with him; and to bring a young lieutenant and put him in that position I do

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do not think would be right; but I do not see why a lieutenant of some years experience should not do it, particularly if he has qualified, whatever qualification might be thought proper, and therefore has trained himself for it, knowing that he is going to have a certain consideration for doing it, that he is in the road to promotion, or that it is an opening to him to get himself on.

1028. By a qualification for a large ship, you would require something more than a mere examination; you would require practice probably in some other class of ship, would you not?—You would require practice in a large ship; but I do not know that it requires particularly great practice to master this duty. A person who had been officer of the watch in a large ship, and had qualified to be a sailing lieutenant, and looked forward to doing the duty of sailing lieutenant, would gain as much experience in ordinary seamanship as a master. That is my idea. It is not a thing of any very particular mystery; the mere actual navigation of course, is the same for all ships. There is no officer who passes a tolerable examination at the college now that could not navigate a ship with very little practice; in fact, if he passes a good examination he is qualified to navigate any ship; he can do what is necessary to navigate a ship; he can take his sights and work them out as masters do. Such a person wishing to take up that line, and being encouraged to do so, would after some years duty as lieutenant train himself. I do not think there is anything to prevent a man who is doing a lieutenant's duty in a large ship, or in any ship that he is in, from gaining the sort of experience that is wanted. With regard to a lieutenant in the navy who is ambitious, if it were made worth his ambition, and he chose to take up that line, I cannot see why he should not do that duty after a few years quite as well as any master, in fact, I think better.

1029. Would you consider it desirable that he should remain in that line for a certain time, at all events, where he would be most useful?—I do not feel that I draw any really very great distinction between that line and the ordinary line sufficiently to think so. I think that he would be likely to be a better officer in the end; it is a branch of his profession which he otherwise would probably have neglected. He would perhaps be a better seaman afterwards for all the duties that a captain is called upon to perform; at all events, with respect to the duties of superintending the pilotage and navigation of the ship, he would do them much better as a captain for having devoted himself to that branch as a lieutenant. I should state in illustration of what I mean, that when I was commander of a brig there was no master on board; the master became ill very shortly after we left England, and for the year and a-half that I was there, there was no master in the ship at all. There were three lieutenants. I had no particular speciality for taking sights, and did not care about it, but the second lieutenant had, and he kept the chronometers, and did the navigation of the ship, and I did all the pilotage of the ship. That was the way the duty was performed; and we were generally in pilot waters, in the Straits of Malacca, Borneo, and those places. And in illustration of how little labour the mere navigation of the ship really is, it is what a great many people do for their own pleasure. There was a ship paid off at Chatham not two months ago, the "Calypso;" she had had no master for the last 18 months; the first lieutenant had done his own duty and the master's duty entirely; so I understood from the captain.

1030. When a ship is attached to a fleet, could the captain do the duty that you did in the brig?—No; but then my idea would be that there should be other officers. I do not mean to have one officer less in a ship, but I mean, if you take an ordinary line-of-battle ship, and take the master out and put in a lieutenant who has been five or six years a lieutenant, and who from the time he passed his examination, and from a taste for that particular line which certain officers have, has devoted himself to that branch, and has had some encouragement to take it up as a road to promotion, instead of taking gunnery as some do, such a person, I think, would do the duty very well by the time he had been five or six years a lieutenant; *i. e.*, by the time he was in the position that the second lieutenant of a line-of-battle ship generally is. Of course, in making appointments you would look out for a gunnery lieutenant, and for a proper person for first lieutenant, and for a proper person for the sailing lieutenant, but I think it would be desirable to get rid of a rank of officers who, from the very nature of things, must be discontented. I do not use the word "discontented" in any harsh sense; but the very nature of the case is, that they are not content with their lot, particularly now that they see that persons in the merchant service, who started in a parallel position to themselves, consider themselves, and are felt to be, in a higher position, and perhaps rather look down upon them.

1031. As it is very desirable to have men of experience for the large ships, do you think that it would answer to have the lieutenants who have been promoted to commanders to act in the large ships as navigating commanders?—Yes; there is nothing which occurs to me at this moment against that at all. I am for having persons that are not too young; a large ship is not to be trifled with. I am for having a person who has really experience. I have not considered the subject of having commanders as navigating commanders; but I have nothing to say on the other hand, it entirely chimes in with the general view which I have of the desirability of not having what I call a sort of excrescence upon our general naval service, of persons who have no particular speciality which we cannot find within ourselves, and which exists, in fact, only that there being no encouragement for its development, it does not come out, but it is there. There is a considerable proportion of young men now who pass for lieutenants who, if they were encouraged to take it up as a line, would be very glad to undertake the navigation of a ship; I mean that a young man would do it from taste, and would like to do it. Of course you would look for more experience than that, and you would require such a person, before he took it up with any increase of pay, or any advantage of promotion, to serve a certain number of years and gain experience in handling a ship; but I do not know why such a person, when he has gained experience in that line, should not, after having distinguished himself so as to be thought worthy of promotion, be promoted, and continue in the same line. I should not think it a good thing to make them entirely a distinct branch; for instance, to make them like surveying officers, quite separate from all the rest of the service. I should let them merge in again, and not neglect their other duties, such as gunnery,

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and so on. I do not see any reason why they should be a distinct and separate branch. I think that that leaven is what we want in the general service; we have not got it at present; it is a branch of the naval profession which is not cared about so much as, it strikes me, it ought to be in our service.

1032. You would probably prefer taking a young lieutenant to a young master for navigating, as they stand at present?—Yes. I am sure that in the last ship I was in a year ago, if I required to take a lieutenant to navigate the ship, I could have had one who would have navigated her, speaking generally, as well as any master that one could have; but then we were in the fleet, and often in bad weather. We were very often in positions at night, manœuvring or taken aback, in which a very young lieutenant would not be the proper person; he would not bring that amount of seamanship with him which the master of a line-of-battle ship does. Such a person is generally an old, and therefore an experienced seaman; but I would ensure that experience, either by having one of the senior lieutenants, or, as the Honourable Chairman has suggested, by having a commander who is qualified for that duty. As for having a person of experience, that experience exists in the general body of the service; and there is no occasion to have another set of men to do that work who rather think themselves, at any rate, and who perhaps are, in an anomalous position.

1033. Although you might do away with the class of masters, you do not think, do you, that the captain, who has a great deal to do in other ways besides navigation, should have more responsibility than he has at present?—No; because I apprehend that the captain has in the end the entire responsibility. I do not think there is any responsibility thrown upon a master that a lieutenant of some years experience as lieutenant might not very fairly have. There is another thing I would mention. In our own waters masters pass for pilotage into our own harbours; but I think, if it were thought desirable, any lieutenant wishing to qualify, and being induced to do so, either from a small increase of pay for doing the duty, or promotion, or whatever else was thought to be a proper encouragement to hold out to him, would qualify for it, for there is no great mystery about it. It is a thing which masters do not learn like pilots, from constantly from their boyhood going about and seeing harbours; but they learn it from the direction books, not necessarily from their personal observation, and that information any lieutenant can obtain for himself, I should imagine.

1034. You see no reason why a lieutenant should not qualify in navigation?—No. If you go to a station where the master has not happened to have been before, you, as captain of the ship, have access to the charts and books, which are provided by the Admiralty, and if you choose to do so you know just as much about it as the master; and any lieutenant whose attention is turned to that subject could also do the same thing; it would be his duty, and he would do it.

1035. What kind of officers have you lately found the masters' assistants and second masters to be?—Those that have come across me quite lately have been very inferior. I have observed formerly that they have been considerably better instructed in the things that are done under the naval instructor on board ship than the cadets who come from private schools in England; but since the education in the "Britannia" has been instituted on the one hand, and what seems to me to be a falling off in the class of masters' assistants on the other, I do not think that that is the case now. In the last ship that I was in, the masters' assistants were immeasurably inferior to the naval cadets in all the subjects of which tabulated forms came in to me, and in their studies under the naval instructor they were always the worst, and it was the same in other things. They were dull; they were not easily stirred up to compete, and there was not much emulation amongst them; but I am speaking now more particularly of the two that were in that ship. I do not mean to say it was general, but that was my very latest experience. Before that I had noticed that they were very often superior, but when one came to inquire one often found that they were picked lads. For instance, in Greenwich Hospital, one out of 200 of the boys gets that reward, and the same might naturally be expected from young gentlemen who came from any mere average school elsewhere, if they were selected for their proficiency in that school. That did not prove much any way, but when it is held out as a reward, you may get lads who may not be superior in ability, but may have been educated better for that particular purpose when first they enter. I do not mean to say that after four or five years the others may not probably be equal to them. Of course the other boys learn it, though they learn it a little later; they are taught it then instead of having learned it before. I do not think that when you get them they are so well educated, unless you get those that have been educated up to come into the service, and therefore at the age at which they come in with the others, they are better at the time; but I really think, in the long run, though our education is desultory, we give the young officers of both classes a good many things to learn, and we exercise their brains considerably. From the nature of the service they have to perform up to the time they go up to pass their examinations, their minds are as much exercised (though upon different subjects) as those educated at other places. A master's assistant receiving an appointment from the fact of his being better than the others in the school, is no criterion that he will remain so. The Committee, I daresay, have found out, or may ascertain by inquiry, which branch passes best at the college, where, I believe, their examinations are the same. That, of course, is a thing that is open to proof.

1036. Where have you generally seen masters' assistants and second masters do their duty on board ship?—The second master of a large ship, as far as I have seen, has always done it below, in the holds, and I should say not in so good a school as the older midshipmen and mates who do the duty above. I have generally seen the masters' assistants keep watch; they came up with the master as soon as they were able to take time, and to assist the master in taking his sights, but otherwise they have generally done the same duty as the midshipmen; they are not so often put in boats, I think; it is more customary to put the others in boats, but otherwise they have done much the same duties as the other young gentlemen. But speaking of second masters, except in flag ships, I doubt if there was a second master in the Channel fleet when I was there. I do not know where the next generation of masters is to come from, there are so very few of them. I do not

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not think that if you run down the Navy List you will find that half the frigates and line-of-battle ships, except flag ships, have second masters in them. When I was in the Channel fleet there was one appointed to my ship who had been just brought in from the merchant service, but his ways were so different from ours in the eyes of every body, that he himself very soon got the captain of a troop ship to ask for him to come there. The captain of the troop ship wanted some one who had been accustomed to do a different sort of work from our ordinary work, and though we wanted a second master, we were very glad to have an opportunity of getting rid of him, not from any harm in him, but his ways were different, in fact, and it was felt that he could not carry on the duties of second master properly; he had not got the habits and ways of an officer in a man-of-war.

1037. Do you think that for the duties of navigating officer a midshipman is brought up fully as well as, or better than a master's assistant?—Quite. A master's assistant, of course, as he gets older, knows that he is going to have to do with ships' holds, and so on, and he informs himself accordingly; in fact, the second masters generally do their duty there; but the stowage of a ship is one of the regular questions which are now asked in the tabulated form, as part of the examination for seamanship. The stowage of the hold is a very simple subject, there is no mystery about it; and if the second master is an officer who can get work out of the men, which I think the general run of naval officers are much more likely to do than those who have come from elsewhere, I do not know any reason why the senior midshipman, or the sub-lieutenant, should not be able to see the hold stowed just as well as the second master, or the senior master's assistant. Beyond that I think it would be very desirable in our service not to continue to introduce into it a set of people to do those necessary duties for us, but to do them ourselves, so to speak, in the general line of our profession. I should add that it is only of late years that I have come to that conclusion, and it arises from the circumstance that I think the relative position of the masters, not with regard to the other officers, but with regard to those persons who have started from the same point in life, and have joined other services, is different from what it used to be; and also, that our education is so much improved now that it would be very much better if we did that business ourselves, which we are quite competent to do. And therefore I think that the masters and other naval officers would be much better in one body than separated; the passing certificates of a master and of a lieutenant are identical. If, for instance, an officer gets a first-class certificate in seamanship, and a first-class at the college, such a young man is as fit to train himself as a lieutenant, for a few years to do the duty of a master of a line-of-battle ship as anybody else, get him from any place you please in the whole world; and I should say that it would be very much to the advantage of our service if he did so.

1038. Entering a little more into detail, would you prefer having the appointment yourself, as captain, from amongst the lieutenants, or that the Admiralty should make the appointment?—I would rather have them appointed by the Admiralty, because I think that in the case of all those appointments which captains have, there is a great deal of delusion about them. A captain may or may not know that he is likely to have a ship; but most captains, when they get a ship, have been some little time on shore, and have lost sight of persons. I think that the Admiralty have better means of knowing who are fit persons to appoint; but if it were thought desirable that the captains should do it, I would have some test imposed, either selecting those who have taken first or second-class certificates in seamanship, or those who have passed a good examination. I would require that they should have reached a certain standard, and should be amongst the first; I certainly would not select any one who had passed a third class in seamanship. But if you selected only the first-class men perhaps you would shut many good men out, because many of us learn our seamanship after we have passed; however, as to that, the Admiralty would know those who were the best to appoint. You might, if you pleased, let them notify beforehand, and let it be known who is and who is not desirous of taking that branch. If it is thought necessary, they might pass the Trinity House examination for pilotage in the Channel, which would at once indicate those that had from those that had not knowledge of that subject, and were candidates; but I should prefer the appointment by the Admiralty, because I think that the appointments would be much better made by the Admiralty than by individual captains. I would much rather, if I were to be made a captain of a line-of-battle ship to-morrow, that the Admiralty should make the appointment than myself.

1039. In what manner would you dispose of the masters, second masters, and masters' assistants now in the service, having special regard to the claims of the many old and valuable officers now on the masters' list?—I think the proper way to dispose of them is to put them at once in their proper place in the various lists, in the general line of the profession. Where those proper places are, of course would be a grave consideration. I think the proper places for them, taking it at the beginning and going down to the end, are between the captains' and lieutenants' lists inclusive; but in considering where they should stand, of course you must have regard to the claims of old officers. If you were to say that every master who had served so many years should be put in the commanders' list, it would be necessary to be careful that you did not do in justice to the old lieutenants, who had served the same or a greater number of years. It would be a thing that would require great caution, but I think that the place for them is on the list of lieutenants, and of commanders, and I should think in a few cases, on the captains' list. I think myself that the best way to avoid getting directly into collision with the lieutenants would be, to put them into those lists with reference to the service they have had. For instance, if you said that a master who had been the master of a line-of-battle ship for three years should be in the commanders' list, that would not give any direct grievance to the lieutenants; whereas, if you said that a master who had been 15 years in the service should be put in the commanders' list, a lieutenant who had been in the service the same period would be aggrieved. By the plan I have suggested, I think you would avoid giving offence where you would wish to avoid it. Supposing a master has been the master of a line-of-battle ship

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ship for four years, such a man has held a very responsible position for those four years, and might very fairly be put on the commanders' list. It would be a thing requiring consideration, and upon which I should be very sorry to speak offhand, because I think it does require consideration, but I think it is to be done, and that seems to me the proper way of doing it.

1040. The mere removal to the commanders' list would, in many cases, reduce their pay as masters?—Yes, but I do not hesitate to say that I think it would be very beneficial to the service to sweep away the masters' list altogether, and to get rid of them; and in doing that, you must allow those that do not choose to adopt this plan to go on the retired list as nearly as possible upon the footing upon which they now are. I feel that a great number of active masters would be very much gratified by being placed on the general list of the navy. I think it would do away with all uncomfortable feeling that they have, because they have no complaints, or certainly not reasonable ones, I should think, with regard to pay or anything of that sort; but the thing that they feel is their position, and that so far is a good feeling; and I think the greater part of them would, with great satisfaction, go on to their place in the general list of the navy. Those that did not like it from various causes, on account of the pay, and so on, I would allow to go on the retired list, retaining what they had got; and if they liked I would give them a retired rank, whatever I thought equitable; but I should think that all the men that were most worth having on the active list, would be only too happy to go on the general list in a fair position.

1041. And a fair allowance being made for the pay which they now have as masters?—Yes; or rather they would be very generally employed as "sailing" commanders and lieutenants, receiving the extra pay and other advantages thereunto attached; and with this I should hope they would be content.

1042. There has been a feeling expressed by some of the masters that the appointment of master attendants should only be held for 10 years, or till a man has attained the age of 60 instead of 65; do you think any alteration of that kind desirable?—No; I do not think so; that is always supposing that the class remain as they are. In that case, the position of a master attendant is one that I think they can fill up to the age of 65; I should rather say that it is not a question that I should leave to the masters to decide. I should let the master attendants stay in their office until it is found by experience that they become from age worn out, and that it is desirable that they should be replaced. I think it is a question for the Admiralty to decide upon those grounds; but I should think they should stay there till that time arrives; if 65 has been found to be the time up to which they could stay there with advantage to the service, I do not not see any reason why they should go away sooner.

1043. You have no reason to think that the duties could be better performed by new men coming in, if such an arrangement were adopted?—No. On the contrary, I think that the duty of a master attendant is one requiring peculiar special local experience to do it really well. There is a good deal that requires great experience; all that concerns the handling of ships in the harbours is a branch of seamanship which they do not get elsewhere. And then there is a great deal of technical minor experience connected with dockyard business, so that I should think new men would always have a great deal of that kind of experience to learn; and for both these reasons I think it is better not to change them too often, both for experience in the management of the business afloat, and also the details of their office work.

1044. Following up an answer which you have already given, is there anything in the birth, education, or training of masters' assistants and second masters to qualify them to do the duty of sailing officers in ships, rather than there is in that of the cadets?—Nothing whatever. I should say that a cadet coming into a ship at first has as fair a start as a master's assistant, and would certainly be quite as eligible in every possible way to do the duties.

1045. And he is in general upon the deck keeping watch, is he not, while the second master is between decks and in the holds?—Yes. I think young masters' assistants, as far as I have seen in practice, have been amalgamated with the cadets whilst they are boys; but as soon as they grow older, as soon as a master's assistant gets either to be a second master, or is old enough to take charge of anything, the practice is to put him in the holds; whereas an older midshipman becomes a mate of the watch; they branch off in those two directions.

1046. And from the hold of a ship a young master is at once put in charge as sailing master of a small vessel?—Yes.

1047. To go a step further, do you think that there can be a worse training for such a position?—A second master can train himself voluntarily; but if he does nothing but what is expected of him in a large ship, I think there cannot be a worse training on board ship.

1048. You mentioned the case of the "Calypso" being for 18 months without a master in the Pacific, and that the first lieutenant had done duty as master; do you know the name of that first lieutenant?—His name is Bradshaw.

1049. Are you aware that the ship in coming home, came through the Straits of Magellan?—Yes.

1050. That is perhaps a portion of as intricate navigation as there is in the world?—Yes.

1051. Are you aware further that that first lieutenant, while doing the first lieutenant's duty, made a survey of two harbours in the Straits of Magellan, which the captain of the "Calypso," through yourself, transmitted officially to the Admiralty?—I was not aware of it so much in detail as you have mentioned; but I recollect that the captain mentioned to me that the first lieutenant had made a plan of one or two harbours; but I do not recollect the particulars.

1052. Judging from that instance, and it is fair to presume that there are many others like it, there is nothing in sailing officers' duties that prevents such an officer from being an executive officer also?—Nothing whatever; in fact I think the two things ought to be amalgamated. I must confess that I never had any great taste for taking sights, and I have not followed it up; but I have always felt that it is in some degree discreditable to us; I think the two things are very much better united, and that that would give a zest and spur to that particular branch of a seaman's and naval officer's duty which is now neglected by a sort of tacit consent and by custom. Although there are regulations to take sights,

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yet it is tacitly left in the hands of the master's class, which I entirely disapprove of, and I think it would be much better if it were not so.

1053. As you have stated the case, the master or the sailing officer would be appointed after an honourable competition?—Yes; I think it would be very desirable to make it so.

1054. Would not that tend to raise the character of the service greatly?—I think it would. I think the character of the service now suffers by the total neglect of that branch of it. I think that that part of the character of the service which depends upon the opinion which the officers of foreign navies form of us, must suffer by our carrying people about with us to do so integral a portion of a seaman's duty as the navigation of our ships, for certainly there is something very incongruous in it.

1055. Have you been much in company with ships of foreign nations?—Not very particularly. Having been a good deal employed abroad, I have been thrown into contact with them very frequently, but not for any great length of time together.

1056. I believe none of them have a separate class of officers set apart to navigate the ship, as is the case in the English Navy?—I believe not. I believe there is no navy in the world that has. I believe the Americans have one of the junior officers, which is, I should think, a bad plan. I should prefer one of the senior officers; and I am rather under the impression that the French have one of their juniors, but I am not quite sure about that. I think those that I have happened to know individually have been apparently young officers who did that duty; but I should have one of the senior lieutenants to do that duty; at any rate, I would not allow an officer to do it who has not had experience as a lieutenant—not merely because he has passed an examination, but because he has had the handling of a ship.

1057. Did you happen to be in the Eastern Seas when Commodore Perry, of the United States Navy was there?—I think not.

1058. Are you not aware of the fact that his flag-lieutenants did the duty of sailing officer, and made a survey of some of the harbours in Japan, on which surveys all our ships sail at this moment?—No; but the United States sent an expedition to the Pacific, in which the naval officers generally (I do not think they were particularly surveying officers, as they are in our service), made a running survey of the Fejee Islands, by which I navigated those islands with a deserter seaman and the people about there for pilots. I found those surveys to be very generally correct; whereas the Admiralty chart was as much like the Fejee Islands as a chart of this table would be. There was no likeness whatever about it; and it did not profess to be correct. It was not vouched for as being by authority of the Admiralty, but it was the only thing which we had except the survey which the Americans had made, which, I have no doubt now, has been found not to be exactly accurate, because we have made a further survey since that time; but at the time it was a very useful thing; and it was done by American naval officers, under Commodore Wilkes. But I do not believe, so far as I could learn, that the officers were professedly scientific men; they were naval officers simply, and in the United States Navy; they have, I believe, no surveying officers united in one branch.

1059. Are you aware that the survey to which you refer was pronounced by Captain Denham to be so accurate that the Admiralty have adopted the United States survey as the foundation of their present chart of the Fejee Islands?—I am not aware of that; it was a survey made in a few months by those persons. I went about the islands very much during the three or four weeks I was there, and certainly it was a very creditable survey.

1060. Would it not be very desireable that the officers of the navy should generally turn their attention to these subjects, rather than spend their time upon frivolous employment?—Yes; but I do not think that the officers up to the time at which they pass their examinations do spend their time in frivolous employments; young men up to 19 have full occupation for their time.

1061. I am speaking only of lieutenants?—Certainly. I think with a little encouragement they would do very much more than they do, even now. I do not think that there is any body of young men that I am acquainted with, whom I have met with any where, whether lawyers or soldiers, or in whatever profession they may be, who, as a body, are less frivolous than lieutenants in the navy, and less unwilling to take up anything professional; that is my impression of them generally as a body, and I think a very little encouragement would induce them to take up that or any scientific branch of their profession. I think they are persons more disposed to follow up the education they have received than the generality of persons whom I meet with of that age are.

1062. Has not the setting apart of a separate class for navigation and such matters naturally a tendency to make other officers indifferent to navigation?—Undoubtedly; that is quite my impression; we all feel that it is the master's business and not ours.

1063. It has been stated before the Committee that the stowage of the holds and the charge of the stores are duties which require officers especially bred up for it; do you think there is any force in that objection?—Not the slightest in the world. I do not think there is the least force in it; it requires, like everything else, a certain amount of training and a certain amount of attention to it in order to do it well, but I do not think there is anything in it that a lieutenant cannot do quite as well as a master.

1064. Do you consider that a lieutenant, who might select that line of sailing officer, if he were kept continuously six years at sea, would be competent to take charge of a line-of-battle ship?—Certainly. Supposing, for instance, that he passed what I may call a first-class examination at college, and showed that he had knowledge, and was able to pass a creditable examination in seamanship to start with, such a lieutenant making that his line, and looking forward to getting his promotion through that line, I think would do his duties as well as any master in the service, speaking generally.

1065. Has not a great change come over the service lately owing to the introduction of steam, and to the introduction of iron ships, whence questions connected with magnetism have arisen, which require officers of a higher education to deal with?—Undoubtedly.

1066. The question of sailing and manœuvring now in fleets is reduced, is it not, almost to steam tactics?—I suppose it will be so; it is rather a

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matter of speculation what it may be, but, as it is, in the Channel fleet when I was in it (and I left it less than a year ago, having been in it for near two years), the manœuvres and everything were carried on then under sail, although now and then the ships were under steam.

1067. In actual warfare do you not consider that a knowledge of steam tactics will be absolutely necessary?—Yes.

1068. Have the masters, as a separate class, any special qualification for dealing with those subjects?—No, not in the smallest degree.

1069. In truth, it has now to be acquired by that class of officers, has it not?—Yes; it has now to be acquired by that class of officers, and I think the same thing holds good with regard to seamanship. I do not think that the masters, as a body, are better seamen than such lieutenants as would elect of themselves to take up the line of masters. The steam manœuvring, as far as I have seen of it, is not so easy as it seems to be until you try it, but it requires that sort of observation which any young man who is a sailor, whether he is a master or a lieutenant, will acquire in a certain time; but a master has no speciality to enable him to do it sooner than a lieutenant.

1070. The introduction of iron ships rather does away with all the duties of the masters with regard to stowage, does it not?—Yes.

1071. Is it not the case that the "Warrior" and the "Defence" have 17 holds instead of one hold?—Yes; they are divided into a very great number of compartments; and in steam line-of-battle ships the stowage of the holds is the simplest thing in the world; they are all divided a great deal more than they used to be, and there really is no mystery about it.

1072. The chain cables stow themselves in their own chain lockers, do they not?—Yes.

1073. Do you think it would be desirable to introduce a class of warrant officers to take charge of the holds and the lower decks; for instance, a captain of the hold as a sort of warrant officer, and a captain of a deck as a warrant officer?—I can speak from experience so far, that during the two years I was captain of the "Trafalgar" there were actually in the ship two additional warrant officers for the very purpose, one of whom took charge of the lower deck and the holds, and the other took charge of the main deck, nearly the whole time. Those two men did those duties very much, I believe, to the satisfaction of the commander and myself and all concerned. They did their work well, and there was nothing at all in the way they did their duties that would prevent me from entertaining the idea that it was desirable to have warrant officers specially for that duty. I never considered the subject generally, so that I should not like to say so off-hand, but that is the result of my own experience.

1074. The duty must be performed by some one, and it is desirable, is it not, to get an active executive officer under the captain to do it?—Yes.

1075. But there is no part of the duty down below that a warrant officer would not do as well as the second master?—I think not at all. A warrant officer, if he is not a person who maintains his self-respect amongst the men, is apt to make use of abusive language; but that holds good to some extent with regard to any of the officers, second masters or others; but a warrant officer who maintains his position would do his work as well as anybody; there is nothing in it that requires a particular education, and of course any warrant officer could do the work.

1076. You have already stated, have you not, that every officer in the ship should take his share in the superintendence of and become acquainted with the management of the decks, orlops, and every part of the ship?—Yes; in the seamanship examination for a lieutenant every officer is expected now to pass for the stowage of a ship below, and for the berthing of the ship's crew; but unquestionably any young man who passes a good examination under the heads contained in the instructions, at 19, can very easily qualify himself if he is in a sea-going ship, to do the duties of a master at 24 or 25, after serving five or six years as lieutenant; an intelligent man who wishes to advance himself would do so.

1077. Upon the whole, looking at the future prospects of the service, it is your deliberate opinion, is it not, that the public service would be advantaged by the masters' class being amalgamated with the executive class?—Decidedly, I am of that opinion.

1078. What encouragement would you hold out to a young lieutenant to take upon himself the duties of a master?—I have not gone into the subject sufficiently to be able to give anything like an opinion that would be satisfactory to myself, but I think that there should be a little increase of pay and some encouragement in the way of promotion. As the first lieutenant of a ship and the gunnery lieutenant have a certain increase of pay, I should give the sailing lieutenant also an increase of pay, and I should let it be understood that the sailing lieutenant's line was a road to promotion. I know that one is getting into a difficulty in talking about the road to promotion, because the two roads to promotion that exist now do not seem to lead very far, and if you institute a third it will make it still worse in that respect; but still we are always hoping that the promotion will go quicker than it does now. Of course, the very fact of merging a number of officers into a general service in which the lists are too much blocked already, is a disadvantage; and if I were not thoroughly convinced that the expected advantages very much overpowered those disadvantages, I should not speak so positively, because I am quite open to the fact that we are putting those officers into lists which do not feed the upper ranks so fast as they might, and which therefore are clogged already.

1079. Would it be fair to the present lieutenants, as regards their promotion or their future prospects, if you were to merge all the officers into their list?—I think it would tend to check their promotion, as I say, unless we get upon a more general ground; unless something is done to give a general spur to promotion.

1080. In short, it would be unfair to the lieutenants now on the list, would it not?—I am not prepared to say that it would be unfair. The Admiralty, in the first place, have a fair right to do it; in fact, it is in the instructions that a master may be promoted to be a lieutenant or a commander. The Admiralty reserve to themselves the right to do so, although to do so in a great lump would of course tend to check the progress of promotion, which is already too slow.

1081. Would it not tend to make the present lieutenants dissatisfied?—I do not know how many masters would go upon the lieutenants' list at once, in proportion to the whole number; if a great number of them went I think it would; it depends,

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depends, of course, on that. No doubt the tendency of blocking up those lists would be to check promotion. I am so convinced in my own mind that it is a most desirable thing to do away with the masters as a separate class, and to merge them, that I would do so, though it open a larger question. The lieutenants are dissatisfied now; indeed all ranks of the service, or at least the junior ranks, feel that promotion is kept back, and that they are losing years of time in each rank which would be profitably employed by them in the ranks above, for the benefit of the service. This addition of the masters would add another drop to that over-flowing bucket, no doubt, but I think the sooner that bucket is eased the better. This would be an additional reason for taking whatever steps will help to solve that very difficult question of giving promotion within a more reasonable time than the present system allows of. If you do nothing at all for the junior branches into which these masters are to be merged, it is a logical inference that you would create dissatisfaction, because they are under a pressure already, and you will increase that pressure; but I think it still more deleterious, in one sense, to the service, to keep us in the position in which we are now with reference to masters. I feel very strongly now that the circumstances under which the masters were beneficial to the service as a separate class have passed away, and that being no longer beneficial to the service, it is very desirable to get rid of them as a separate class.

1082. What circumstances do you allude to now?—What I apprehend to be the reason why the masters were desirable formerly is, that there was very little education amongst the executive officers on the one hand, and you were able to offer to young men, whose social position was not quite the same as that of the other officers, that sort of opening for their ambition which was very valuable to them, and which induced them to come into the service in that way; it was an opening which they valued very much at that time, but it is an opening which now, under the altered state of circumstances, they do not value, and you do not get the best men. You do not get the same class of men as formerly, and on the other hand the officers in the navy themselves are very much better educated and perfectly capable of doing what I should call their own duty.

1083. What number of years would you require a lieutenant to serve before he should have charge of a line-of-battle ship as master?—If I were to name the time, I should say five or six years.

1084. Should he have any special examination for the situation of master in a line-of-battle ship as compared with that of a master in any other ship?—I do not think that would be necessary, particularly if he has done the duty in the smaller ship; but I do not think it is necessary at all, even without that, that he should pass an examination, if he was a person who had qualified for the post; and I do not think that the difference between navigating a line-of-battle ship and navigating any other ship, except as a question of pilotage, seems of so much importance as to require it. I would much rather that he was a thorough seaman, and had been in charge of a line-of-battle ship as an officer of the watch for six years, than that he had been piloting a ship in and out of home ports for six years, in order to do the duty of a line-of-battle ship.

1085. When you say five or six years, you mean five or six years actually employed at sea, and not merely as standing on the list, do you not?—Just so. It does not seem to me desirable that he should be the senior lieutenant in a line-of-battle ship, but, as the Honourable Chairman says, I see no reason why a commander should not be the navigating officer. It is a part of the question about which I am not prepared to give an opinion as to the exact time of appointment, but I do not see why he should not be a commander.

1086. But his experience should be decidedly gained at sea, should it not?—Yes; but any person who, we will suppose, passes a first-class examination in seamanship and at the college, and who with a view to carrying out that branch of the profession, so far as being a sailing commander or lieutenant is concerned, goes four, five, or six years in a sea-going ship, would, in my opinion, be capable of doing the duty that is done by the master in a line-of-battle ship.

1087. The knowledge acquired when a young man passes at college is chiefly theoretical, is it not?—No; a young man who passes at college is perfectly capable, if he passes a tolerable examination, of navigating a vessel at sea by the ordinary methods; and that part of it is practical. The seamanship is, I think, a good deal of it, theoretical. I think, for my own part, that most naval officers learn a great deal more seamanship after they go into the ward-room mess than they do as midshipmen; but I think the tendency generally is to unlearn what they already know practically, namely, the navigation of a ship.

1088. If the class of masters were done away with, to whom would you give the dockyards and the victualling offices, appointments now held by the masters?—I would give them to such officers as the Admiralty might think proper in the general branch of the service. That is a detailed subject which I should not like to answer very decidedly upon at once, but generally I would answer that I should give them to the officers in the naval service whom the Admiralty might select for them. Whether they should be given to commanders or captains I should not like to say positively, without considering it over in all its bearings; but my impression is, that I should give the situation of master attendant of a dockyard to a captain. In fact, I suppose, if what I venture to give as my opinion were adopted, that the masters should be merged into the service generally, the master attendants of the dockyards would be captains, if you went as high as captains; at present they are the most eminent men, speaking of them generally, in the master's line; they are now commanders.

1089. Do you think it necessary that a captain should have some special officer to assist in navigating and piloting a ship?—Yes; I do certainly.

1090. You would not charge him in addition to the duties which he has at present with that of navigating his own ship?—No; I think the duty and responsibility which are now charged upon the master, a lieutenant of experience, such as I have mentioned, is perfectly qualified to take.

1091. Do you consider that the introduction of steam has made the navigation of ships more easy or more difficult?—That is a matter for consideration; it is more easy in some respects and more difficult in others. We are obliged to be more bold with the land now, and there are many things which require a sharper look out than formerly.

1092. Formerly you went at the speed of three or four knots an hour, whereas now the rate is nine or ten knots, which makes it more dangerous, does it not?—Yes; but I should not prefer, for that reason, to have in a line-of-battle ship an old master to a competent lieutenant; that would rather confirm me in preferring to have a lieutenant with experience than an older master. I will mention, as a matter of my own experience lately, as captain of a line-of-battle ship, that whilst I was in command we had four masters. because she was a line-of-battle ship, and therefore the idea was to have an old experienced master. The first one very soon showed, as the expression is, that he had had his day; he was worn out. The fact was that the whole thing was too much for him. He went, and then came another, who also was a master taken from the list of masters of line-of-battle ships, and he was the same. If he had been in a sailing line-of-battle ship to go out to a station, and that sort of thing, he would have done very well; but this sort of half-steam and half-sail work in the Channel was too much for him, and he left; and then came a third, and he went. Then we had a young master. There being a scarcity of masters, a young one was brought out of a frigate, and put there; he was a young man, of fair ability, and he got on very well. In one sense he had not half so much experience as the others; but in another sense he had a great deal more, that is to say, he had got all his experience at his fingers' ends, available for use at a moment's notice, and he was quicker and sharper. That illustrates generally what I mean by saying that line-of-battle ships are not so much better off by having men with that immense amount of experience which is so much talked of. I have seen the same thing before. I was ordered to go out to the Crimea for troops in a line-of-battle ship. A master was in her who had been navigating and doing all those duties I have mentioned, in answer to question 1026, and had done them uncommonly well; but when we came to be under steam in the night, and went at full speed, he was entirely done up. In making a passage to Gibraltar, he did not think it prudent to go within 100 miles of Cape Finisterre, and had no idea of doing it; in fact, I took the duties out of his hands in a great measure, because we could not otherwise have done what we were expected to do. This officer, when he was master of a small vessel, had been a very active man, being young and able to go through the wear and tear of his duties; but when he came to be of the age at which he was appointed master of a line-of-battle ship, he broke down.

1093. Do you think that any person unaccustomed to command, and who perhaps had never kept watch in his life, could do the work of a commanding officer efficiently?—No, certainly not, not as a rule.

1094. Do you consider that a staff branch of officers selected from the executive branch, and rising to the rank of commanders and captains, getting the present pay of the masters, would answer well as a navigating branch?—No; I do not think it would answer. In the various duties of a naval officer the navigating branch is one branch, and an essential one; but if we were to separate it and give it advantages in respect of pay over the branch which is the main stream of the service, I think it would be putting it very much out of its proper place; that is my impression.

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1095. If those men did not rise to the rank of admiral it would remedy that evil as regards a number of officers rising in the executive branch, and looking forward to being admirals, would it not?—It occurs to me that there is no use in having such an establishment; the duties of navigating a ship are a part of the ordinary duties of a ship which every naval officer ought to know, and by a little encouragement to those who are disposed to make it their special business for a time, the end might be gained without having the incumbrance of another branch, which, I think, would be most likely to produce discontent. Certainly I am not prepared to say exactly whether that would cure the evil you mention, but having them separated would be a bad thing; and I also think that one great advantage that we should gain in the service from not having them separated is, that we should receive back into our favour and consideration a branch of our duty which really now we have entirely thrown away, and which is essential; that is to say, the navigation.

1096. You stated that there was sufficient occupation, generally speaking, for an officer in bringing a ship to anchor in her position in a fleet. Do you consider that there is sufficient occupation for the master of the ship?—Yes, as well as for the captain. I think for a large ship to take up her berth either under steam or under sail, in a fleet, when a fleet is anchoring together, it is necessary that there should be two persons of experience on that ship's poop or on her bridge. Those two persons are, under the existing regulations, the captain and the master. But the captain and an intelligent lieutenant of five or six years' standing, I think, would do just as well —I mean a lieutenant who is a seaman; I do not mean to take any one, but a man who has trained himself for the duty, and has experience.

1097. Looking at the duty of attending to the steerage and conn as most important, do you think that in action, if the captain and commander were killed, the master or the person in charge of those duties could relinquish them, in order to take command of the ship?—I think he could. I think he could appoint another officer to do them. I do not think it would be necessary at all that the ship should suffer. I think that the master himself may be killed in a ship as it is now, and then we should be very much worse off than we should be if the ship were navigated by the ordinary executive branch. If a master is killed, and we entirely neglect to call the attention of our officers to these points, we should be then deprived of one of the advantages which I have expressed to the Committee. From doing away with the masters as a body, our naval officers would be more habituated to consider the navigation of the ship under various circumstances as their business, and therefore those who succeeded would be better able to do it than they would be now. Supposing that instead of the captain or the first lieutenant being killed, the master were killed, I believe the practice would be to send for the second master out of the hold; whereas if we had to send for another lieutenant, I think

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I think the service would be much better performed.

1098. But supposing the class of masters, as they are, to continue to exist in the service, do you think that the master would be the proper person to take charge of a ship in action, after the captain and commander had been killed?—No; a master would not because of his rank; the next lieutenant would take charge of the ship.

1099. You spoke of a Greenwich Hospital boy who had particularly distinguished himself amongst the masters' assistants whom you have lately met with; have you any idea of who his parents were?—Not the least. I was speaking of some years ago, when I was in the "Centurion." I recollect then observing that the masters' assistants knew more, that their writing and spelling, and everything they did was better done; and I have noticed the same thing in other ships, and I found that in one or two instances their situations as masters' assistants were given them as a prize, they having been selected as having distinguished themselves above others, and, therefore, I ceased to consider that there was anything intrinsically superior in their education which made them better than the boys who came from the ordinary private schools in the country, but it was merely that they were distinguished in their class. If they had gone elsewhere, if they had gone to Harrow, for instance, they would have been distinguished, and would have taken the lead; they were boys of superior ability, and therefore it was not fair to compare them with the sons of people who had been sent to an ordinary school, and who have been taken at haphazard, as it were; I mean, taken as the average.

1100. As many of the masters of the present day are growing up in years, and are men of distinguished ability, do you think that it is just to them that the master attendantships, which these masters have been looking forward to as almost the only thing that they have to look forward to in the present day, should be generally held till the age of 65, or would it not be better that they should only be held for a limited period, with a view to the benefit of the service?—I think that the benefit of the service is the paramount consideration; whatever is best for the service must be our object; but they have not got many things to look to, and that is one of the grievances of their position which I should prefer getting rid of, by getting rid of this class altogether, and putting them with the ordinary ranks of the profession.

1101. You would look to a superior knowledge of seamanship even more than to a superior knowledge of navigation as a necessary qualification for a navigating officer, would you not?—Yes; I mean a superior knowledge above what is necessary and competent; of course, you must have a competent knowledge, but I would infinitely rather have a thorough seaman than a person who could take lunars better than anyone else, and who was better versed in the more abstruse parts of nautical astronomy. I would infinitely rather have a person who was a more thorough practical seaman, provided he had a competent knowledge of navigation.

1102. With a view to avoid doing injustice to the commanders and lieutenants now on the list, how do you think it would work to give the present class of masters additional rank, and retain them until they are moved by retirement, death, &c., and then commence a system of navigating lieutenants, commanders, and so on, from the regular executive line; in the meantime, using those masters who are fit for service, keeping them on a separate list?—Anything that tends, if I may use such an expression without disparagement to them, to get rid of them as a class, and to get the two classes merged together, is, I think, desirable; but I think it would be better to merge them at once, provided the plan, whatever it may be, were such as to give the service the promotion that is necessary to bring people forward in their steps at their proper ages; provided that were done, I think it would be better to merge them at once; but if the Admiralty have any insuperable difficulty in doing that at once without doing injustice to the lieutenants, keeping their lists over-clogged as they are now, and as they would be then, I think the plan you propose would be better than leaving it as it is; but I think it would be better still, if they could be merged into the service at once. I do believe (though that is opening another question altogether) that with the Navy list so clogged as it is, if anything were done to relieve it, it might be made comprehensive enough to compensate for the addition of the present active masters to the various lists. I think that would be a very satisfactory way of doing it.

1103. With reference to the question put to you as to the time for which a sailing officer should serve before being qualified for a line-of-battle ship, are you aware that the master of the "Cæsar" line-of-battle ship has not been three years a master; the master of the "Immortalité" is just six years; the master of the "Liffey" is barely six years; the master of the "Mersey" has not been six years; and the master of the "Orlando" is barely six years?—No; I was not at all aware of that circumstance.

1104. Does not that quite confirm you in the opinion which you have stated to the Committee, that it is young, energetic officers whom we now want in our large steam-ships to navigate them?—Yes; it certainly is my opinion that those ships are much better off which have young masters. The "Cæsar," for instance, is very lucky in having a master who has only been three years a master, instead of one who has been 20 years or 15 years. I say that without knowing the individuals. If I were to go into a line-of-battle ship, and were asked if I would have a master of six years or a master of 20, I would say I would prefer to have the master of six years' standing.

[The witness Withdrew.

Commodore

Commodore Sir FREDERIC W. E. NICOLSON, C.B., Bart., R.N., Examined.

Commodore Sir *F. W. E. Nicolson,* C.B., Bart. R.N.

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1105. WILL you state your present rank and employment?—I am Commodore Superintendent at Woolwich.

1106. In what ships have you served as first lieutenant, commander, and captain, and for what periods?—I first served in the "Blonde," about a year or a year and a half as senior lieutenant; then in the "Fantome," as commander; and then in the "Pique," as captain.

1107. Are you aware that discontent exists among the masters of the Royal Navy?—No, I am not aware of it.

1108. One grievance which they complain of is, with respect to their relative rank with other officers. Do you think they have any reasonable grounds for discontent on that subject?—I remember when I commanded the "Pique," ordering the master to keep watch in harbour at night, in consequence of there being two midshipmen, who were then very near their time for passing, keeping watch, in whom I had not much confidence; and the master then very respectfully said, that he thought it was hard that he should be placed as it were on a footing with those youngsters, who might in a week or two, or a month or two, pass their examination and be promoted as acting lieutenants over his head. I thought there was some reason for his complaint, as these young officers might the next month very possibly have been made acting lieutenants. However, I was obliged to make him keep his watch at night; but I think that is the only instance in which I have ever heard anything like a complaint from a master on this subject.

1109. Are you aware that any feeling exists with regard to the civilian classes having been raised relatively to theirs?—Since the appointment of this Committee, I asked one of the masters at Woolwich about it, and he said that that was one of the things felt as a grievance. I think he said that the paymasters and engineers had got some precedence, and on referring to the instructions, I find they have. The paymaster-in-chief, I think, and some classes of engineers do take rank above masters; that is all I know about it.

1110. Do you think it would be beneficial to Her Majesty's Naval Service in general that the class of masters, second masters, and masters' assistants, should be done away with as a separate branch of the service?—Yes.

1111. To whom could the special duties now performed by masters be entrusted?—I think that in making a change of that kind it would require to be done very gradually and very carefully. I think, in the first place, that many of our captains, who have certainly not given particular attention to navigation of late years (I speak of a certain portion of them), would, of course, find great difficulty in at once taking upon themselves those duties; and then again most of our young officers and lieutenants, after they have passed their examinations, do not pay that strict attention to navigation that they ought to do, or perhaps that they would do, if they had really to make a practical use of the knowledge they are required to possess. Many young officers work up their navigation so as to be able to pass their examinations, and then it dies away entirely out of their minds. But I do not see any difficulty in making captains entirely responsible for the navigation. I think that the divided responsibility between the captains and masters has always been a drawback, both with respect to the navigation and pilotage. I dare say, if the thing could be traced out, ships have got on shore, and may even have been wrecked, owing to that divided responsibility. I remember the case of the "Thetis" many years ago. The "Thetis," was running from Rio, and going to round Cape Frio, with nearly a fair wind; she gradually edged away, and the captain said to the master, "Cannot you keep her away, first one half point, then another?" and it ended in the ship being run on shore. I firmly believe that if that captain had had the entire responsibility, or if the master had had the entire responsibility, that ship would not have been lost.

1112. Supposing the entire responsibility were placed on the captain, would you not have some one in the position in which the master now is, to assist him?—No, not in the precise position in which the master now is. I should modify the present arrangement very much. I think that a great part of the master's duties are practically done by the commander or senior lieutenant. All that refers to the holds, and all that refers to the rigging, could be very easily done by the commander or senior lieutenant. Then with respect to the stores: the master has some vague charge of the stores. He is not actually responsible for them, because the captain is responsible if the account of the stores is wrong; it is his pay that is stopped (I think that I am right in that) and not the master's. If the captain saw the rough expense books every week, and looked into this matter a little more, I do not think there would be any difficulty with regard to the stores; the only real difficulty would be with regard to navigation and pilotage. With respect to navigation, I think there is no difficulty in the captain navigating his own ship; even when first arriving in harbour, after a long voyage, he can always spare a quarter, or half an hour to take sights. But I certainly would give him some one to assist him. How far you would allow that officer, whoever he may be, to be, I will not say responsible, but to have any responsibility whatever, is another question; but I think that the captain ought to have some one to wind up the chronometers, to assist him in taking sights, and to take sights likewise as a check for rating the chronometers. With regard to navigation, I think, there are a number of officers who are quite able to navigate, and that you would have no difficulty on that score. The fact of a man being well up in his navigation, ought to be, to a certain extent, a stepping stone to promotion.

1113. Have you ever served in a fleet as captain, where the captain has many other duties to attend to?—I have not served in a fleet as captain, but I have served in company with several other ships and sailing in fogs, which is almost more disagreeable, and requiring more attention than sailing in a squadron, to the evolutions of which I think the question refers. Even then I do not see why a captain should not be able to attend to the navigation, because, after all, the chief part of the navigation work is done, after the sights are taken in the morning, between half-past eleven and one o'clock, when evolutions rarely take place.

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1114. Ordinary navigation from port to port is simple enough, is it not?—Quite so.

1115. But when you come to narrow channels with a squadron of many ships, do you think that a captain could give sufficient time to navigation, and attend to the other duties which he has to perform?—It depends, of course, very much upon the navigation. I hardly know of any very intricate channel, where you would be likely to be manœuvring with a number of ships; and if they were under steam, I suppose it would be simple enough. If you had to take a squadron into Lisbon, beating between the Cachops, I should call that an intricate channel, and there would be a difficulty; but I should think that you would then take a pilot.

1116. You never have had actual experience as captain in a squadron of more than three or four frigates, have you?—No, not as captain.

1117. Whom would you appoint to assist the captain?—With regard to the appointment, I am not quite clear as to what would be the best plan, but it certainly should be one of the lieutenants.

1118. Are you aware what the French system is?—I cannot describe it exactly, but I believe they have what they call an Officier chargé des montres, a sort of chronometer lieutenant, if you may call him so; but I do not know the system sufficiently well to state what it is.

1119. Are you aware what the French officers think of their system as compared with ours?—Yes. I remember on one occasion one of the French captains with whom I sailed a good deal in company, told me that he thought our system of having a master was a very good one; but I must tell the Committee that he was the most helpless man I ever met with. Invariably whenever we came within six or eight miles of land he came under our stern, and kept in strict line of battle, saying it was of no use risking two ships instead of one. I do not think that his opinion was worth much, and indeed I think, from what I heard from his brother officers, no one of them would back his opinion; but as to the other French officers, I am sure that a knowledge of navigation is far more generally diffused among them than among our own officers, which I attribute entirely to their not having masters.

1120. Is not that the opinion of French captains and the opinion of other officers in the French navy generally?—I do not know personally; I have only heard it by rumour. I think it is very natural that a French captain would like to have a master to take the responsibility.

1121. Supposing that we had a navigating lieutenant in the same sort of position as a gunnery lieutenant, do you think that that would answer?—I do not quite know what you mean by the same sort of position. My idea of a navigating lieutenant is this: that he is to do other duties besides the mere navigation of the ship. I think there is plenty of time, as far as I know of the duties now performed by the master, to allow the lieutenant to help very materially in watch-keeping and in other duties. I do not think the duties of a master for all the common occurrences of the service are sufficient to absorb the time of one man.

1122. Do you think that you could take upon yourself the duties of the captain of a line-of-battle ship in the Baltic without a practised assistant in the navigation?—I do not quite understand what you mean by a practised assistant.

1123. I mean a man who has gained experience either as master or lieutenant, or in some such position during his service generally?—It is very difficult to answer a question of that kind, because I have never been in the Baltic, and I do not quite know the extent of the difficulties in that sea. I have heard, of course, from others generally that the navigation there is difficult; you often meet with thick weather and heavy gales, but I do not know why a captain should not be able to undertake that duty. Of course, if a man is constantly up at night, no man, whether he is a captain or a master, could stand that beyond a certain length of time, that is very clear. I should think that anything which one man can do, the captain could do, and I see nothing in the education of the captain which should prevent his performing any duty which the master could perform.

1124. The question is whether there is not, in a case of that sort, quite sufficient work for two men to do jointly?—If the responsibility is to be so divided that they both must do the work, I think it would be better to have only one; but if they are to relieve each other, and this hard work is to continue for a length of time in an inclement climate, of course it would be better to have two men. If the point of the question is: whether a good master is not a valuable assistant to a captain, nobody would ever deny that; there can be no question about it.

1125. Assuming that it is necessary to have a master or a navigating officer to assist the captain, do you think it is desirable to have a lieutenant to do that work?—If you mean as a general rule not specially referring to any particular case or any particular navigation, I certainly think that I should prefer, chiefly for the general good of the service, that it should be a lieutenant; that instead of having a separate and distinct class as we have now, it should be arranged in some manner that it should be done by a lieutenant. I think I may add that in a case such as that put in the previous question of a long continuance of arduous navigation, the next in command to the captain should be the person responsible, supposing the captain was tired out or had been up several nights; I do not mean the least in the world that the navigating lieutenant should take charge; I think it should be the commander, or the senior lieutenant where there is no commander.

1126. Have you found the masters' assistants and second masters whom you have come across lately to be a good class of men?—I have had very little experience of any of them of late; I had only one in the "Pique," and he was a very good young man; he had been at Greenwich and was very steady and likely to make a very fair master. We had no second master. I do not know whether it is the case now, but formerly, the second master used generally, in a line-of-battle ship, to be buried in the lower regions, and he had very little opportunity of learning those special duties which are the most difficult to acquire experience in—namely, the navigation and pilotage; he was entirely occupied in the holds and orlops.

1127. Do you think it would be better for the service that master attendants should be appointed for ten years or for a limited time, and that they should retire earlier than they do now?—I certainly think it is hardly fair upon the other masters that when a master attendant is appointed to a dockyard he should remain there until he is completely worn out.

1128. Independently

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1128. Independently of fairness to the other masters do you think that the service would be better performed if he had to retire as I have mentioned?—The master attendant whom I know best, is at present very vigorous, though he has been in his present berth a long time; but I think it would be generally speaking good for the service if they were removed more frequently; I do not specify any limit; the superintendents are limited to five years.

1129. Do you consider that having a separate class to perform the duties which the masters perform has a tendency to make other officers indifferent to navigation? — Yes; I have no doubt it has.

1130. Is there anything in the education and training of second masters to qualify them to undertake the responsible duties of master of a ship?—If you mean by their education and training, that education and training which they have had since they have been in the service, as second masters, I think, of course, that they are to a certain extent, trained for the berth, unless, as I have before stated, they have been in line-of-battle ships or in frigates, where they have been entirely occupied by being kept below in the holds and at lower deck work.

1131. Can there be any worse education for the duties of a master than being kept upon the lower deck?—Nothing worse, I should think, because an officer cannot do anything else if he does his duty properly. A man who has charge of the lower deck and the holds or orlops, as is frequently the case, has his whole time absorbed in those duties.

1132. Do you consider that a young lieutenant is as well qualified on the whole as a young master, with respect to navigating a ship?—Yes; for they pass the same examination, with the exception, of course, of the Trinity House examination in the one case, and the examination in gunnery in the other.

1133. If the post of sailing officer were thrown open to the whole service, do you consider that it would become a point of competition among officers generally? — Yes; I think it would. Without entering into any details with regard to any change of that kind, I think there should be some sort of inducement held out. I am not quite sure what the inducement should be, but I think captains ought to serve for a certain time as sailing officers. Of course there must be many promotions, I mean of lieutenants to be commanders who, perhaps, might not have been sailing lieutenants. You could not make it a stringent rule that every captain should have been a sailing lieutenant; but I think that his having been one ought to go far as a claim for promotion.

1134. And by degrees in the course of about 20 years the whole service would be leavened, would it not, with officers of that sort, who had been in the habit of navigating their ships?—Yes, I think so; but whatever is done, any change should be made with the greatest caution, and very gradually.

1135. Of course every consideration should be shown to the present masters in placing them in the respective rank of lieutenants, commanders, or captains?—Yes, certainly; whatever opinion one may have as to the general benefit of making some change, nobody can hesitate in saying that the masters are generally speaking a most valuable class of officers.

1136. Is it not their continuous service that has been the means of their gaining the experience they possess, and becoming so valuable a class of officers?—There is no doubt that they have been more continuously employed than the officers of the other branch, and that would naturally give them greater experience, provided their abilities were in other respects equal.

1137. And it would be well to make it a condition that if the sailing officers were selected from the class of lieutenants, they should be continuously employed, would it not?—I think it would be very desirable for the service generally that all men of a certain age should be continuously employed, but whether you can make it a specific condition or not, I should hardly like to say.

1138. You have stated that the change should be gradual; how would you effect it, having regard to the claims of the many old and valuable officers now on the masters' list?—I really feel hardly competent to give an opinion upon that point.

1139. What would you do with the present masters?—I stated just now that I really feel hardly competent to give an opinion, because I have not studied the question sufficiently to be able to say how the measure should be carried out; but I think that if any such change were made, it might be made gradually, without any difficulty. In the first place you would cut off the supply of masters by not entering any more masters' assistants, and thus the whole class would gradually disappear in the course of time. In some ships for a time you would have masters, in other ships you would not. But I do not mean for a moment that you are to sweep away the class of masters with a stroke of the pen.

1140. If you placed them on the lieutenant's list, would it be fair to the lieutenants now in the service?—I never contemplated anything of that kind. All those details I have not studied.

1141. There would be a very limited number, I presume, to put on the active list?—There are 164 masters employed at present, and deducting those in guard ships, station ships, and those in command of troop ships and tenders, there would be barely 100 to be absorbed in the lieutenants' and commander's list; were you aware of that circumstance?—I was not aware of the number; I thought there were more. I should like to state one difficulty which has occurred to me with reference to any change of that kind, and it is this; that if you add so many to the lieutenants' list, *pro tanto* you diminish the promotion, unless you increase the admirals' list; but that is of course quite a different question, which I have never gone carefully into.

1142. Only that it bears upon the change in the masters' position?—Of course.

1143. With reference to this change, would you consider that the little difficulty which may arise from absorbing those officers in the general lists is of sufficient force to stop the arrangement being made, if it is for the general benefit of the service?—I think, perhaps, that is a question which would be better answered by some of the gentlemen in the Admiralty, who have so much to do with promotions and retirements, and matters of that sort; but I should say, certainly not, if you ask me my own opinion, taking it for what it is worth.

1144. Is not the general benefit of the service paramount to any little trifling technical difficulty that there may be in classifying the officers?—I think the difficulty is more than a technical difficulty;

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culty; I think there is really some difficulty in allowing a fair proportion of the men who enter the service to rise to the higher ranks, and if you diminish their chance of doing so by adding a certain number to the lower ranks, you, as I have stated before, *pro tanto* diminish the promotion in the service. I think it is a thing that might be got over, either by retirement or by increasing the number of officers whom you allow to go upon reserved pay; but it is not a question that I have studied; I only mention it, because I thought it fair to state the only great difficulty which I can see in the question, which is, that you would increase the number of officers in the lower without increasing the number of those in the higher ranks of the service.

1145. In short, does not it resolve itself into a question of extra pay, and would not extra pay solve all the difficulty?—I think it would.

[The Witness withdrew.

Adjourned to to-morrow at 12 o'clock.

Tuesday, 25th February, 1862.

PRESENT:

Rear-Admiral the Hon. C. G. J. B. Elliot, C.B.	Captain George Goldsmith C.B.
Captain Washington, F.R.S.	Captain Charles Henry May.
	Commander Cornelius T. A. Noddall.

Rear-Admiral the Right Hon. CHARLES G. J. B. ELLIOT, C.B., in the Chair.

Captain JAMES J. M'CLEVERTY, C.B., R.N., Examined.

Captain *J. J. M'Cleverty*, C.B., R.N.

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1146. YOU are a captain in the Royal Navy?—Yes.

1147. Will you state in what ships you have served as commander and captain?—I have served in the "Polyphemus," in the "Terrible," and in the "Cambrian." In the "Polyphemus" as a commander, and in the "Terrible" and "Cambrian" as captain and commodore.

1148. And for what periods?—I was three years in the "Polyphemus," upwards of three years in the "Terrible," and four years in the "Cambrian," making 10 years altogether. Lately, I served as commodore in the "Cambrian."

1149. Are you aware that discontent exists amongst the masters in the Royal Navy?—No; but I know that when I was senior officer at Hong Kong (it did not come to me officially, but I knew privately), that the second masters assembled together to petition that their position might be improved.

1150. Do you know what was the grievance of which they complained?—They complained principally of the want of position.

1151. Do you think that it was with regard to the want of position as second masters, or what? Relatively to the other ranks.

1152. With regard to the masters, have you heard that there is a feeling that they do not hold sufficient relative rank with the other officers?—No; the masters whom I have had have been generally excellent of the kind, but I never heard any complaint from them.

1153. Their relative rank has been altered to some extent lately, has it not?—Not that of the masters, I believe.

1154. At least the other officers have been moved?—I mean relatively to the commissioned officers; they still rank after the junior lieutenant. I think that the feeling amongst them is, that although they get to a certain standing they are still juniors. In a line-of-battle ship, where a master has been for a long time a commissioned officer, he still finds himself junior to the junior lieutenant, in which case I think he would complain.

1155. Do you think they have reasonable grounds for complaint on that score?—No, I do not. I do not think that the service could be benefited by having a master commanding officer of a ship. I spoke to my own master in the "Cambrian" on the subject. He was first-rate; and he said he felt that, having never been in the habit of commanding men, in the event of the first lieutenant being absent, and his relative rank making him commanding officer, he was not competent to maintain discipline. It was not a thing he had ever looked forward to, and his mind had never been bent to it.

1156. Do you think that it would answer that, although they might be superior to the young lieutenants, they should be always considered as subordinate to the commanding officer?—They must always be considered subordinate to the commanding officer, I should think. I do not see how the discipline of a ship could go on if it was otherwise. At the same time, I do not know any one who is more fit to command a ship in action after a commander's death than the master, and yet with regard to the common discipline of a ship he is not at all fit for it, because his mind has never been bent to it, and, like everything else, it requires practice.

1157. Can you propose any remedy for what the masters feel to be a grievance in this respect?—No, I cannot. I think that their pay should be increased. They are most valuable officers to us, particularly in large ships. To a captain who has been five or six years on shore, and then comes on board to command a large ship, a man who has always been accustomed to navigating ships is invaluable. By the time a man rises to be a master of a line-of-battle ship, his contemporaries who were incompetent have been weeded out of the service. A man who holds such a position has gone through a trying probation; he must be a very good man, and the captain feels a trust in him which he has lost in himself, in consequence

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sequence of having been on shore for six or seven years. When such a man has arrived at a certain position I would let him have the same pay as a commander.

1158. Do you think you could give him rank?—You cannot give him rank, because he is an active officer. Directly the commander leaves the ship, if you give him rank, he would be most likely senior in his rank to the first lieutenant, and this man, who had probably never had to do that duty, would be entrusted with the discipline of the whole ship, for which duty he would probably be unfitted.

1159. Have you ever heard that the masters are discontented with their designation or title?—No; I have never heard so.

1160. The masters appear to have advantages over their equals in the executive branch, in respect of pay and half-pay, have they not?—Yes; and I think it is necessary that they should have those advantages.

1161. Do you look upon that as a set-off against the limits placed upon their rank?—Yes.

1162. And you think that their pay might still be increased?—Yes; their pay might still be increased.

1163. Do you think that it would be beneficial to Her Majesty's naval service in general, that the classes of masters, second masters, and masters' assistants should be done away with as a separate branch of the service?—Decidedly not. I am very strongly of opinion that the masters form one of the very best class of men whom we have in the service; and directly you do away with them I think you will lose a great many of your ships. Who is to navigate the ship? Is it to be a young lieutenant? If you take a young man with a private income, and make him my junior lieutenant, he may be a happy-go-lucky sort of fellow. What trust should I have in him that my chronometer was wound up every morning at eight o'clock?

1164. Supposing you educated a lieutenant, and obliged him to be a good seaman as well as a good navigator, do you think that he could then take the place of a master?—Then he replaces the class of masters, and directly you want him, and he is most valuable, he would be made a commander, and you would lose him for a line-of-battle ship where you wanted him most.

1165. Do you think it would be possible, supposing such men were promoted, to have a navigating commander of a line-of-battle ship?—A commander of a line-of-battle ship, if he does his duty, has as much work as he can do without taking the duties of navigation upon himself.

1166. But, supposing we had a navigating commander, in addition to the other commander, would that answer?—That would do; but I think you might make the master a commander in the same way, because, after all, he is only a master with a different designation; the title is the only difference. If you educate him with your second master, who is at this moment educated for that express purpose, you could call him a lieutenant, and if he were a lieutenant you might make him a commander, and you might do the same thing with a master; it is the same man with a different designation.

1167. Supposing you did away with the class entirely, and educated the sub-lieutenants and lieutenants as navigating officers, and made some regulations that, with a certain amount of experience, they might be put in the position of navigating officers, do you think that such a system might answer?—I do not think it would answer so well as at present; it would be nearly the same thing, only on a worse system. A captain, particularly as he grows older, does not, when he comes into harbour, consult the first lieutenant, for the first lieutenant can be of very little assistance to the captain in bringing a ship into harbour; but the man whom the captain always consults, is the master because he has been in the habit of navigating ships. When I first came into the service, the best masters we had were men who were old captains of merchant ships, or young men who had been chief mates in large ships, and had been in the habit of taking ships in and out of harbour. I look upon it that the man who pays attention to the stowage of the holds, takes care that the ship is properly rigged, looks after the navigation, and looks to the chronometer, has as much to do as one man can do, if his work is done well. And really, when you look at one of our ships at this moment, and consider of what immense value she is, there certainly should be one man appointed solely to attend to the navigation of that ship. In theory, it is all very well to suppose that every man should do everything, but in practice one man's whole duty should be to attend to the navigation of the ship. It would be far better for the captain, and would be less expense in the end to the country, for you would lose fewer ships. I think, with the immense ships and the large ships' crews which you have at this moment, there ought to be one man whose sole duty it should be, and who should have been educated from his boyhood upwards for the sole purpose of navigating the ship, and in assisting the captain in doing it.

1168. Therefore you think, do you not, that the master should be kept a distinct class, as at present?—I think so; and there is another point which I could mention—namely, the very expensive habits of our navy prevent old officers being able to send their sons into it as midshipmen. The only opening for the sons of the commanders who have little besides their pay to live upon, is in the master line, because, if a boy is once taken into our service as a midshipman, he costs his father quite 80 *l.* a year; whereas they can put them into the masters' line without that expense, and we get a far better class in consequence. The older officers, too, are satisfied with their sons being placed in that line.

1169. Do you actually think that the work would be better done by retaining the present class of masters than by having lieutenants to do the duty?—Yes, certainly.

1170. Where have you generally seen the masters' assistants and the second masters do their duty in the ships?—They generally begin with the holds, both the second masters and the masters' assistants have generally the charge of the holds under the master. The practice with the masters with whom I have always had to do, has been to give them the charge of the warrant officers' books, and they look after them, to train them up as masters, particularly with regard to the navigation and the charge of the holds; in fact, the second master is a kind of deputy for the master.

1171. Do you think that they have sufficient opportunity to learn seamanship, which is an important part of a master's qualification?—Generally not; generally the captains leave the stationing of the subordinate officers to the first lieutenant, and the first lieutenant almost always

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stations a master's assistant to the charge of the holds. What I would recommend is, that in inspecting ships the admiral should insist that the masters' assistants and the second masters should be put into the watches, and have the same opportunities as the midshipmen have. I believe the best way will be to have all our masters' assistants brought up in the surveying service. I was three years in the surveying service, and I do not think we make enough use of our surveying service with respect to these officers.

1172. Article 22, at page 364 of the Admiralty Instructions, says, with reference to the instruction of second masters and masters' assistants: "To the second master and masters' assistants, he [the master] is to afford all the information in his power in pilotage, and in the theory and practice of navigation and seamanship; and he is to see that they attend constantly on deck on going into and leaving harbour; that they also attend in mooring and unmooring, in both anchor work, in the stowage of the hold, and in making the several nautical observations required in navigating a ship; it being considered as his special vocation to instruct the officers in all the branches of a master's duty. He is frequently to examine the remark books, logs, or journals, which he is from time to time to lay before the captain, with a report of the progress they may have made, as well as of their general diligence, character, and abilities"; is that instruction generally carried out in the service?—Nine times out of ten the masters neglect it. Unless you have now and then a good master that does look after this sort of thing, or is particularly fond of it, or the young assistant master is the son of an old friend, and has a genius for that pursuit, that article is a dead letter.

1173. You made a suggestion as to the training of masters' assistants more in the surveying service; why do you consider that that would be beneficial to them?—There they would learn both seamanship and every other part of their duty. (I was in the "Etna" for three years, and our second master there was an excellent officer). They would thoroughly understand all the work of a master, both in navigation, seamanship, and boat work; they were constantly ashore, and every now and then they had to see about the anchoring; in fact, it was exactly the service to form a good master.

1174. Do you think that that should be the beginning, as it were, of their sea education?—Yes.

1175. Do you think that on foreign stations there might be surveying vessels or screw vessels of that sort for masters' assistants?—There are always some on every station; and it could be very easily managed to supply a large number of masters' assistants and second masters to those vessels. At first the commander of one of those ships would not like it, because he does not want the raw material, but at the end of a year the boys become useful; they will lay down all their work, they will sound and survey, and at the end of three or four years they will become first-rate surveyors for the common run of surveys. The young man gets accustomed to judge distances; he is given first the care of a boat, and he goes on until he can take charge of his own ship; his eye gets accustomed to distances, and he gains nerve to take ships in and out of harbour. The anchoring and weighing of those surveying ships are incessant. We used to moor every night at seven o'clock, and next morning at nine get under weigh; and all our boats, except one, were away all day, so that the work of the ship was done by a very small number of men. We had only one boat left on board the ship, and the masters' assistants acquired a knowledge of practical seamanship, because they were obliged to put their hands to the work, not merely looking on. I look upon the surveying service as the very best school which you could possibly have for masters.

1176. Do you think that there has been a falling off in the attainments of the masters' assistants and second masters lately?—No; I think, on the contrary, that you put them so much into gunboats that they are better. In China, where I have been for the last four years, their work was incessant. We had a large number of gunboats, and having only a lieutenant in command and second master, the consequence was that their work was incessant. They got into the habit of handling a ship, and understanding her whole work, and they came out very good masters when they got into their own ships.

1177. Had you a second master for your commander?—My master was put, by the order of the admiral, into the "Hesper," and I said, "There is a good second master of a gunboat, that I know; and if you will give me this man I shall be quite satisfied." I had been in the habit of seeing him, and I saw how he did his work, and I knew that he was quite efficient.

1178. The mere attainment of a knowledge of what is called navigation generally and nautical astronomy you look upon as simply useful for navigating a ship from one place to another?—Yes; I think that is quite sufficient. If a man can take his lunars, if he is really a good observer, a steady and correct navigator, I think that is all that you want. I do not think that you want very high mathematical attainments in a master.

1179. Do you not look upon seamanship as a point of the first importance?—Yes; I was speaking only of mere mathematical attainments. All that you want in a master in that respect is, that he should be able to navigate a ship; and then, beyond that, you want a seaman.

1180. The second masters whom you referred to in China gained their knowledge from constant work, did they not?—Yes; from constant practice.

1181. Do you think that it is that constant work which makes the masters in general so useful a class of officers as they are?—Yes; it gives them the requisite nerve.

1182. Do you think that a clever and intelligent young officer, a sub-lieutenant or a lieutenant, would, in general, after a few years, become as useful an assistant to the captain in navigating as the present masters are?—No; because talent is equally divided among all classes, and the man who bends his mind to one subject, and knows that he has to make his way in the profession by that subject, would be superior to a man who allows his mind to be diffused over three or four subjects. If you hold out a prize for the men who come into the service as masters, you will have men of good talent who will devote themselves entirely to that branch of the profession, and they will be far superior to men who either have been engaged in the work of first lieutenants of ships, or commanders as well as masters, because, you may depend upon it, that talent directed to one object is sure to be more successful than when it is directed to two or three.

1183. At present the masters complain that that prize is not held out to them; do you agree with that?—They are mistaken about that, because if a man comes into the service with a thorough knowledge of what its prizes are he should be content with them. A captain of a forecastle might just as well complain that he cannot be made captain of a ship. If a man enters the service as a second master, or a master's assistant, and knows that he has to work his way up, and that in the end there are certain good prizes held out to him, such as the dockyards, and retirement as a commander, a man of that order comes in with that thorough knowledge, and works for it; therefore I do not think that he has any right to complain.

1184. If you could give advancement to the masters as well as additional pay, without interfering with the other executive branches, do you think it would be desireable to do so?—Yes.

1185. But besides promotion on to the other list, do you think it would be useful to have a superior class on the masters' line, supposing such a thing could be done without interfering with the present executive duties of the executive officers?—I have not considered that subject; it is one which requires a great deal of consideration.

1186. But occasional promotions you think might take place on to the other list?—Certainly; for instance, in the event of a great general action, the master has very onerous duty to perform, with the Commander-in-Chief. The Commander-in-Chief generally takes care that the master of his ship is a first-rate man, and he consults him more than anybody else, next to the captain, in all the manœuvres of the fleet; but when that action is successful there is nothing left as a reward for the master, except promotion. I think it was after the 1st of June that Mr. Bowen was promoted to be a post-captain, and I think that power should be left to promote them in that way.

1187. I am glad to hear your testimony to the value of second masters in China; but is not that rather an exception to the general rule of the service, for we have had a great deal of evidence given that the second masters are confined to the lower decks of ships?—Yes; I stated that the article in the instructions relating to that is a dead letter. The great fault is, that the first lieutenant finds it convenient at present to keep the second master below, in charge of the orlop decks and holds, so that he has no opportunity of learning his duty as a master.

1188. That being the case, if the class of masters is to be continued, might it not be desirable to have a class of warrant officers to take charge of the decks and the holds, instead of putting the second master there?—Certainly.

1189. You think that that would be for the benefit of the service, do you not?—Yes.

1190. Do you see any reason why good warrant officers should not do these duties?—None whatever.

1191. That would set the second masters free, and put them on a par with the cadets to learn their duty on deck?—Yes.

1192. At present, in a general way, the second master, when promoted to be a master, and appointed to a small ship, comes at a great disadvantage, does not he?—Very great.

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1193. At that time, a lieutenant is quite on a par with him as to the knowledge of his profession?—Yes; above par.

1194. Seeing that that is the case, do you consider that it would be desirable to throw the line of sailing officers open to the whole service, if they like to volunteer for it; that is to say, would you allow a young lieutenant to volunteer to do the duty of sailing master, with a view of giving us a larger area to choose from?—No; because I am looking to the future, and not to the present moment. The fact of the case is this: when I was a young commander I was willing to do the master's duty, the first lieutenant's, and everybody's duty; it was quite immaterial to me whether the master was efficient or inefficient, to a certain degree; but when one gets an old captain, it is a very different thing. It is not my province to do the master's duty, and I expect to have a man who is efficient to do it. I should feel no confidence in a young lieutenant to do it. What captain would ever ask a young lieutenant for his advice about navigating a ship? He would never think of such a thing; but he would have no objection to ask an old master, and his opinion generally you would find a very valuable one. Therefore, for the moment, it might be a good plan, but as regards the future I should object to it.

1195. There is no doubt that the classes of senior masters in the fleet are very valuable officers; but are you not under the impression that the masters in our line-of-battle ships, and our frigates, are all of old standing?—I do not say that, but I say that they are picked men. In the course of half a dozen commissions with masters, if a man is known to be bad you get rid of him, either by court-martial, or in one way or another he is got rid of, and when you come to the masters of the larger ships, they are generally very superior men, because the bad ones have gone back in the race.

1196. I understand you to say that you think that a set of officers should be devoted solely to this duty of navigating and piloting a ship, and assisting the captain in navigation?—Yes; with the same duty as the masters have at present.

1197. But you do not think that it would be for the benefit of the service that that duty should be spread among more lieutenants, if they pleased to devote themselves to that branch?—No, I do not, unless they would become masters. I mean that if a lieutenant chooses to volunteer to become a master, and confine himself to the master's line, he might do so; but no young man of ambition that I know would do so.

1198. You have stated, have you not, that the general average of the servitude of lieutenants is about ten years?—Not the average; but the first lieutenants of ships now, before they are promoted, are from 10 to 12 years in the service.

1199. That being the case, I take it for granted that a master is in about his best time after having had two commissions as master in an active ship; say six years as master?—Yes, he ought to be so.

1200. In fact at this moment the masters of the "Mersey," the "Orlando," the "Liffey," the "Diadem," and so on, are all between five and six years standing; is not that a proof that that is about the time at which an officer is in his prime?—Yes.

1201. When you want any great activity in a

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master, you would probably select him from about the age of 30 or 35?—Yes.

1202. You have admitted that a young lieutenant and a young master start on a par, if the lieutenant please to devote himself for two or three commissions solely to that work; is there any reason why he should not be as good as the master?—Not the slightest reason why he should not be as good; but the question is, whether he will continue in that line, which he must do if he chooses that line; you must fix him in it, because the time when we want a good master is when a captain gets old. An admiral looks round among all the masters of his fleet, and chooses a first-rate man, whether he is young or old, to become master of his ship; he has the utmost confidence in him. You may pick the lieutenants, and make them sailing officers, if you like; but when they get to be commanders there is an end of their service in that line, and then where will the captains and admirals get masters for their ships? It is all very well in theory that lieutenants should navigate, but in practice the result would be the loss of several of our ships.

1203. Would there be anything unfair in making it a condition that an officer who selected that branch of the service should continue in it, and should get promotion in it, and should be made a sailing commander after nine years; would he not then be able to assist the captain?—Yes; but the first-class officers in the service would not bind themselves to it. No first-rate officer, who has ambition, would do so. Directly you take him from a service in which he looked forward to hoisting his flag, and put him in an inferior position, that moment he would become a second-rate man.

1204. You have stated, have you not, that you consider it to be desirable that all the navigating class should pass through a surveying ship, if possible?—Yes, I think it desirable, if possible. I think the first three years should be spent in surveying.

1205. Would you say as much as three years?—I think even more; if it were six it would be so much the better. If he were in a surveying vessel, those three years would turn him out well in boating, and handling a vessel. There is such a paucity of officers, that the captain puts him in charge as an officer of the watch. When I was first lieutenant of the "Etna," on the coast of Africa, our second master was an excellent officer and seaman.

1206. Who was in command of the "Etna" at that time?—Captain Vidal.

1207. Do you consider that second masters have an opportunity of acquiring a knowledge of channel pilotage now, before they pass their examination?—Very few. The ships which I have commanded have always been on foreign service; therefore, no man in them could have had any opportunity of learning channel pilotage; and at one time our channel ships were so small in number that it was impossible to give them an opportunity of acquiring it in practice.

1208. Might it not be desirable that there should be a ship in the channel on purpose for training second masters, and teaching them that knowledge of pilotage?—Yes.

1209. Is it fair to expect an officer to go and pass an examination when he has had no opportunity of learning the duty?—No. The consequence is, that he is crammed. It is then all theory; he takes a book, and learns the questions which he expects to be asked; and when they are answered the subject is dismissed from his mind, and he never thinks about it any more.

1210. Are you acquainted with foreign navies?—Not with their interior arrangements, except by sailing with French captains, with whom I have always been on good terms, and we have often talked over our services.

1211. In China and the Black Sea, where you have served, there were both French and Russian ships, were there not?—Yes; but of course we knew very little of the Russians.

1212. Are you aware whether there is any such class of that of master in the foreign navies?—No, there is none; but the man who does that duty in the French navy is a second captain.

1213. In addition to his duties as first lieutenant?—Yes, in addition to his duties as first lieutenant.

1214. Did you ever know a first lieutenant in the English service do the duty of master?—No, never.

1215. It was stated to us in evidence yesterday, that an officer for 18 months in the Pacific did duty as first lieutenant of the "Curacoa," and also as master he brought the ship through Magellan Straits, and surveyed two harbours in the Straits of Magellan besides; were you aware of that circumstance?—No.

1216. Do you know what the French officers think of their system, in comparison with ours?—Not very much. I know the French captains would have liked to have had a master like ours, when I explained to them what he did; but then we are very often in the habit of admiring our neighbours' systems, because we hear the good part of them, and do not see the evils.

1217. Is there anything that you can suggest to remove the discontent which now is stated to exist among the masters?—No; because in all classes of officers we have discontent. We all grumble, from the admiral right down to the smallest midshipmen. If you make their pay good, and give them good retiring pensions, and rank when they do retire, I do not see that they have any reasonable cause to find fault with the service. We cannot all be commanders-in-chief.

1218. You are aware, probably, that the civilians, the surgeons, paymasters, and engineers, have been given increased rank?—Yes.

1219. Do you think that the masters have just grounds of complaint on that score, as their rank has not been increased so much?—No, I do not think so.

1220. They are to a certain extent left behind, are they not, in comparison with those civilians?—Yes; but the difference is this, that the others are civilians; and therefore in the event of an action, or anything of that sort, the civilians are excluded from the command of the ships, or interfering with the discipline of the ship; but that would not be the case with masters. If you were to make them civilians then you might give them any rank you like.

1221. Do you think you could make them more of staff officers than they are at present, though they should not interfere with the duties of the ship, and then give them rank?—I do not see any reason why you should not make them civilians, as well as paymasters and engineers. Of course you cannot alter an old established custom with ease. A master is looked upon as an executive officer; and all the seamen look up to him, when he is an old master, with respect and

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and attention. The mistake is, that if you make a master equal to a commander, and he is an executive officer, you cannot help his taking command; whereas, if you make him a civilian you may give him any rank you like.

1222. And to that you think there are great objections?—I should, as a captain, have none.

1223. You have stated that you considered that the master was, generally speaking, unfitted for becoming the commanding officer of a ship?—I merely referred to the duties of first lieutenant. Supposing the first lieutenant goes on shore, and the master is by seniority the second in command, the consequence is that he takes the command, although, perhaps, he has never bent his mind to it. My master told me that he should be very sorry to do the first lieutenant's duty, because he had never thought of it, and it forced him to do work that he had never been in the habit of doing.

1224. You subsequently stated that you considered the master peculiarly fitted to command a ship in action after the death of the captain; why is that?—From his habit of manœuvring the ship under the captain's orders; it has been his particular study.

1225. But it requires a man to command a ship in action, does not it?—Yes.

1226. Then how would you carry out the duties of the conning and steerage, that the master has been paying such attention to?—When he took command, although he may not be fitted to be the first lieutentant, with regard to the interior discipline of the ship, still, from his constant habit of manœuvring the ship, in the event of an action, and the captain's death, no man is more fitted to manœuvre the ship than he is.

1227. Do you know the present rate of pay of masters, or have you looked at that?—No, I have not.

1228. You acknowledge that masters and second masters are frequently crammed for the pilotage of the Channel, and have no personal knowledge of it?—Just so.

1229. Would you still place perfect confidence in a master, in coming up the Channel, under such circumstances?—Certainly not.

1230. Whom would you trust?—Myself. I always manœuvre my own ship. The master navigates the ship under my direction, but the person I always look to is myself. The fact is, that the lights are so good now that there is no difficulty in navigating the Channel.

1231. You allude to the great knowledge of masters as seamen. As they spend the greater part of their time as second masters in the hold, and never keep watch, where do they acquire that seamanship?—I did not say anything about their being first-rate seamen. I said that the men who came in when I first entered the service, who had been captains of merchant ships, and chief mates of merchant ships, were a first-class set of men, and first-rate seamen, but with the present men that is not the case.

1232. With reference to the captain being killed in action, would it not be more desirable that the command should devolve upon the lieutenant, and that the master should continue to perform his usual duties, instead of assuming the command?—Certainly. What I meant in my answer was, that although the master was unfit to take the discipline of a ship, from want of practice, he was, next to the captain, the best man fitted to manœuvre the ship, from his great practice in manœuvring ships; but my answer was merely directed to that particular point of the manœuvring of the ship.

1233. Are you aware that the class of second masters is gradually dwindling away; that though we enter a large number of master's assistants, we do not eventually retain them, that they get educated in the Royal Navy, and then leave it?—No; I do not think that you lose more of the masters than you do of the naval cadets. Naval cadets come into the service; they find they do not like it, and they leave it. It is all relative. You do not expect that every man who enters the service will remain in it. If you take the list of boys who go into the "Britannia," you will find that a large number of them leave before they pass for lieutenants, and the same thing occurs with the masters.

1234. Are you not aware of this fact, that we have not the number of second masters that the service requires, in consequence of their disinclination to remain in the Royal Navy?—I think not. I think that the want of second masters is owing to the want of introduction of a sufficient number of masters' assistants; and the proof of that is, that in all the ships that I have been in we have had one master, no second master, and one masters' assistant. Our supply of second masters will not provide for the wear and tear of the service.

1235. Do you think that there is any dislike to remain in the service from any of the rules that govern the class?—Nothing more than is incidental to every class. You find that in every class alike; people enter it, and find they do not like, and then they leave it.

[The Witness withdrew.

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1236. You are a captain in the Royal Navy?—Yes.

1237. In what ships have you served as first lieutenant, commander, and captain?—I served as first lieutenant of the "Grecian" brig, the "Eagle" frigate, and the "Hastings" line-of-battle ship; as commander of the "Serpent," the "Star," and the "Indefatigable;" and as captain of the "Formidable," in which I am now serving.

1238. Are you aware that discontent exists amongst the masters in the Royal Navy?—Yes, I am.

1239. Do you know what they complain of as the causes of that discontent?—I think they complain that their position has been altogether altered of late years, since the advancement of surgeons, in the first place, and afterwards of paymasters and chief engineers, leaving the masters entirely in the rear, making their position in their mess and socially worse than it was 10 years ago. I think they particularly complain of the injustice of their not having anything to look for beyond the additional relative rank which they get after eight years' service, cutting them off from anything beyond that.

1240. You think that what they feel most is their relative position with regard to the civilian officers, rather than with regard to the executive?—Yes.

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—Yes. I do not think that they ever feel being brought into contact with the lieutenants of the fleet. In fact, I have taken several occasions of asking the question, since the new regulations have been out, as to whether there was any such feeling amongst them; and they have always disclaimed any such feeling; and they do not look upon themselves as being put on one side by a young lieutenant performing the executive duties of the ship; but they do look upon themselves as being injured by being socially at a disadvantage with all the rest of their messmates since the new regulations have come into force, giving them relative rank with officers in the army, and of course also with their own officers and with themselves.

1241. And you think that they look more to having relative rank given to them?—I do not know that they look more to having relative rank given to them, because, at the same time that those officers I have referred to have had relative rank given to them, they have had considerable solid advantages in the shape of pay, and of course that is a part of the same grievance.

1242. With regard to pay, do you think that they have just cause of complaint?—I do not think that in the junior branches they have; in fact, I think that the junior branches of the masters' department are well paid; but there does seem a very manifest injustice to them in not increasing their pay from the time they have served eight years until they have served 15 years, and then giving them no additional rank. I have asked several masters about it, and I know that they have a feeling that if you could put masters over 15 years' standing in the position which masters in the fleet now hold, and put masters of the fleet in a better position with regard to rank (but not with regard to pay, as far as masters of the fleet are concerned, because they are paid altogether differently), so that after a master has served 15 years you would give him the position which masters of the fleet hold now, that is, to rank with a lieutenant-colonel in the same way as a staff surgeon or chief engineer, it would tend very far to satisfy them with their position; and I do not think it would make the slightest difficulty in reference to the lieutenants of the fleet in carrying on the executive work of the ship.

1243. You think that that rank might be given without clashing with the duties of the ship?—Yes; without in any way interfering with the executive duties of the ship. I can give an instance. In the "Formidable," at Sheerness, the master is a master of more than 15 years' standing, and one of the lieutenants is a very young lieutenant. It so happened that the master was commanding officer for one night, and in the morning he was relieved by this very young lieutenant. A day or two after I sent for the master, and said, "Did you feel any degradation, or did you feel in any way giving up the executive duties of the ship to this young lieutenant?" He said, "Not the slightest in the world." And I have on several occasions made this inquiry of them; and this was only during this last week, before I knew that I was going to be summoned here. I do not think there is any feeling of that sort. They do not look upon the executive duties of the ship as their department, though they may be called upon to perform them, and, as far as I know, they are always ready to do it; but they do not think that it is at all interfering with them, or putting any one over them who ought not to be so, by the young lieutenants taking those duties in preference to themselves.

1244. Still at present they do take the command of the ship after the lieutenants, do they not?—Yes, after the lieutenant. But although this master that I have spoken of is of senior relative rank to the junior lieutenant, he does not take the command of the ship so long as the junior lieutenant is on board, and there does not appear to be the slightest ill-feeling in consequence.

1245. Do you think that if the rank of masters, after 15 years' service, was increased still more, they would be equally content to take the command after the junior lieutenant?—I think, if you argued from analogy, it would be so. I do not see that another step up would make any difference. Of course, if you put a master of 15 years' standing in the position which the masters of the fleet now hold, you must give the master of the fleet a more fitting position; you must give him higher relative rank. Whilst you give a master over 15 years the relative rank of lieutenant-colonel, you must give the master of the fleet the relative rank of a colonel. And if at the same time you give masters of over 15 years' service some additional title, such as master-commander, or something of that sort, to distinguish them, it would be an improvement. You have a master of the fleet, and you have a master attendant; and if you styled a master of over 15 years' standing a master-commander, with that relative rank, I think that would meet their wishes.

1246. That is to say, there would be actual promotion from junior master into a higher rank?—Yes; by length of service. I think there is a very strong feeling amongst the masters against abolishing the title of master for that of pilot, which has been spoken of. They would not like to be designated pilots, even though it were "Royal Pilots."

1247. Have you not heard that they dislike their present designation of masters?—No, I have not.

1248. With regard to the pay, do you think they have anything to complain of?—I do not think they have. Certainly up to masters of eight years, I do not think they have anything to complain of; but I think that after eight years they should be entitled to more pay. I think a master over 15 years' standing ought to have somewhere about 350 *l.* a year.

1249. Have the senior masters whom you have fallen in with been efficient men for their work, in general?—Yes; I think very much so indeed.

1250. You look upon them as a very valuable class of officers?—Yes; as an invaluable class.

1251. Have you met many of the junior masters in the Navy lately?—Not for the last three or four years.

1252. Have you generally found them efficient?—I could not at this moment put my hand upon an inefficient one. A man gets a good trial as a second master before he becomes a master; much more so than a mate does before he becomes a lieutenant. We generally know pretty well what a second master is before he becomes a master.

1253. With regard to the second masters; where have you generally seen them perform their duties?—They are a great deal too much below. It is quite right that they should have charge of the ships' holds at all times, and also of the orlop deck at certain times; but I think they should

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should not be permitted to be mates of the lower deck at all; and at all times it should be made imperative that they should be on deck when the ship is in pilot water, going in and out of harbour, especially in steam ships, where so much depends upon the judgment of the master in taking up a position.

1254. Would you make them more of assistance to the master in doing the master's work?—Certainly, as much as possible; they should always assist the master in taking sights, which in many ships they very rarely do.

1255. How are masters' assistants generally brought up in the service?—I think pretty much as the naval cadets are; they have charge of the boats, and they keep watch. In small ships sometimes they are taken to be put in charge of decks; but it is a very objectionable and improper practice, I think, to keep them below.

1256. Do you think the service has improved in that respect, that they are more on deck than formerly?—I think so; at least, the young masters' assistants are, but not the second masters; the second masters are still the slaves of the old habit of lower deck employment.

1257. Do you think that it would be beneficial to Her Majesty's Naval Service in general, that the class of masters, second masters, and masters' assistants should be done away with as a separate branch of the service?—Not at all; very much the reverse.

1258. You would prefer improving the bringing up of the present young officers to throwing the duties upon another class?—Undoubtedly; they have a special training for a special object, and nothing but that special training can give a man the necessary judgment, and nerve, one may almost say, that is requisite. The mere fact of ascertaining the position of a ship is a very small part of a master's duty; that might be done by anybody, by the youngest lieutenant, or anybody you chose to look out for it; but the handling of a ship, and taking up a position, are matters of judgment; the judging whether a ship has stood long enough upon a certain tack is a thing which can only be ascertained by special training, and if you threw it upon the captain, I think you would overwhelm him. I mean, just at the time when the ship is in difficulties and dangers, when the captain has many other things thrown upon him suddenly, he would also have this great question of the safety and position of the ship.

1259. In ordinary voyages, from one port to another, do you think that there would be any difficulty in the captain taking the navigating part of the duty as well as his own?—I do not know that there would be any difficulty, under ordinary circumstances, but it is in extraordinary circumstances that the value of the master is felt, and you must provide against extraordinary circumstances as much as for ordinary ones.

1260. In the event of the class of masters being done away with, do you think that their place could be filled, and their duties equally well performed, by sub-lieutenants and lieutenants instructed in those particular duties?—If you make them masters under another name, it would be so, and if they have no other duties. I do not think that you could, without a special training, get a class of men so adequate for the duties which they are called upon to perform, as the present class of masters.

1261. You look upon the present class of masters as efficient men for the service?—Decidedly.

1262. Therefore, you have no desire to abolish them?—On the contrary, I have every desire to oppose the abolition in every possible way I can; and I do not think that the masters, as a whole, are discontented, except in so far as they say they find themselves now placed in a different position to what they were in ten years ago, by the recent alterations with regard to the civilian officers, and which have not been carried out with respect to the masters. It is very true you do not give the lieutenant any additional standing or rank after more than eight years' service; but then that is not a fair parallel, because their next step is to be a commander; but a master is in the master's position for his life, and therefore there does not appear to be any reason why, because they stop at lieutenants of eight years, they should also stop at masters of eight years; I mean in withholding from them any additional relative rank. With regard to the master of the commander in chief's flag ship, I think there should always be a man in a position above a master of an ordinary ship; that is to say, if we have this rank of master commander, he should always be a man of that rank; whether he has or has not served 15 years, he should temporarily hold that rank in a commander in chief's flag-ship.

1263. The master of a flag-ship has very important duties, has he not?—Yes. When he is in a squadron, he has more important duties than any lieutenant, so long as he is in a single ship; but when he is in squadron, he has all the duties of a master of the fleet, which is one of the most important offices a man can fill.

1264. He now receives a small extra pay as master of the flag-ship. Do you think it desirable that he should have rank as well?—Decidedly; he should, at all events, have the rank of a master over 15 years, if that relative rank is accorded.

1265. And you do not think that even a master, with a commander's rank, on board a line-of-battle ship would clash with the other officers in their duties more than at present?—Not the least in the world. I do not see that there would be any probability of it. You have already made one step in that direction, which has been met with no inconvenience; and this is just another step in the same direction.

1266. Such a master would not take command beyond what is the case at present?—Precisely; it would not alter his position in any one way, except that you would give him a relative rank, and, I suppose, some additional pay; in fact, this relative rank then would come next after the master attendant.

1267. Would you recommend a master attendant to have superior rank to that which he now holds?—No; I think he has sufficient rank. I do not look upon the master attendant as holding so responsible a position as that of a master of a fleet. Of course, that may be a mere matter of opinion.

1268. Would you have the education of the master's assistants the same as midshipmen, or would you give them instruction in pilotage and surveying?—I would give them the same instruction as the naval cadets, but I would give them the additional advantage of more particular instruction in surveying and in pilotage. In fact, they should begin a certain part of their special training

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training when they begin their education, by means of this additional instruction; for instance, where a naval cadet might be very properly employed in learning French or some modern language, a master's assistant would be more profitably employed in learning to project a chart, or in learning to place beacons. Not that it is not desirable that a master should know French as much as anybody else; but it is not so essential.

1269. And where he is a young hand he should pay great attention to navigation, should he not?—Yes.

1270. Do you think that the duties of navigation ought to be more thrown upon the captain than is the case at present?—No; I do not. In an ordinary voyage you might give any amount of attention to them; but it is when a captain is employed upon difficult service, or may be absent from his ship, that a master is so indispensable.

1271. Be the master's rank retained or not, do you think it desirable that the navigation of our ships should be intrusted to a special class?—Certainly.

1272. With regard to the pay of the masters, you have stated that you think that after eight years the pay should be increased; do you know that at present it is increased at 10 years?—I cannot say that I know exactly what the state of the case is. I mentioned eight years because they have given them a relative rank at eight years, and therefore it seems reasonable that, with relative rank, their pay should be increased at eight or 15 years; not that I think there is any advantage in the eight or 15 years, but that has been fixed upon for the other ranks, and therefore I think the pay should follow the same rule. I do not think that after that period a master's pay is sufficient. I think that a master of over 15 years' standing should certainly have 350 *l.* a year; whereas he gets only 328 *l.* at 20 years, a time which very few masters ever attain.

1273. Do you think it desirable that masters' assistants should be educated in the "Britannia," with the cadets?—I am afraid I do not know enough of the "Britannia" to give an answer to that question.

1274. At all events, do you think they should have the same opportunities as the cadets?—Yes, they should have the same opportunities, whatever they may be.

1275. And with respect to the college, do you think that it is desirable that the second masters should have the privilege of going to the college, previous to passing, in the same manner as sub-lieutenants do?—Certainly, that would be very desirable.

1276. If the masters received the rank or title of sailing captains, commanders, and lieutenants, do you think that that would be likely to bring them into collision with the other executive officers, they taking their rank according to their seniority?—I think it would be putting the masters upon such an entirely new footing that it might possibly bring them into collision with the executives of the ship; but of course that is mere speculation. I do not think it would be a desirable experiment to try, because you could never go back from it afterwards.

1277. Still, you think that having a master with the relative rank of commander in a line-of-battle-ship, although subordinate to the lieutenants as at present, might answer?—Yes; because it is simply carrying out the present system, which does not appear to have failed in any way since it has been introduced.

1278. Would you then retain the double title of master and commander, or leave out that of "master"?—After 15 years' service I would call him a master-commander, but that is the only alteration in title which I would make; they would still be masters, until they were up to 15 years' standing; then they would become master-commander, and that would make the master-commandant next on the Navy List to the master attendant.

1279. Do you consider that the present class of masters could be abolished, and another class selected from the executive branch, as navigators and pilots, with advantage to the service?—Not at all.

1280. Do you consider continuous sea-service essential to make a good master?—It should be continuous, or nearly so.

1281. Do you approve of the present combined responsibility in conducting a ship between the captain and the master, or would you relieve the latter of it, and place it entirely upon the captain's shoulders?—No. I think it is essentially a duty to be performed by two people, and I have never experienced any difficulties in carrying it out myself. I would suggest, that in the instructions to the masters, should be inserted the usual clauses of the captain's night order book, that the lieutenant in charge should at all times immediately comply with any wish of the master respecting the steerage of the ship, afterwards informing the captain, when convenient; but there is no such authority given to the master in the present instructions.

1282. You think that there should be specific instruction to that effect?—Yes; it is understood to be a good and general custom of the service, but is not authorised by the instructions.

1283. You have the character of being an experienced navigator; may I ask, do you navigate your own ship generally?—No; I do not take the observations; but, on the contrary, I always do pilot my own ship. I always take my own ship in and out of harbour. There have been many times at night when I could not have called upon the master to do so.

1284. Why was that? Was he prevented from incompetency?—Where the instructions order you not to run for port at night, and the captain chooses to take upon himself the responsibility of doing so, he cannot call upon the master to do it.

1285. Is there any great mystery in navigating a ship in the open ocean?—None; in fact, it is so simple, that I have never thought it necessary to keep any check upon a master. Any young man of 15 years old may take a ship from one port to another.

1286. You are of opinion, are you not, that a separate class of officers is necessary for the navigation and pilotage of a ship?—Yes; for the combined duties which are performed by the master.

1287. You consider that the navigating officer should be one of the best men we can get for the purpose?—Yes.

1288. And that he should be educated and specially trained for that purpose?—Yes; he should be specially trained for it.

1289. Is it the case at present with the second masters, that they are so trained?—I have already said that it is too much the custom of the service to employ them as mates of decks, which I think ought to be forbidden, except in the case of the orlop deck; the second master is properly employed in charge of the orlop deck and hold; but there is no reason why he should not assist in the navigation of the ship, and in taking a vessel in and out of harbour.

1290. Are the young lieutenants and masters pretty much on a par with respect to their knowledge of seamanship and navigation?—I think not.

1291. Which is the superior?—The young master always, in navigation, because he makes it his special aim to attain excellence in that one point. A young lieutenant makes it his special aim to be a good seaman; that is to say, to be able to handle sails and spars, and boats and guns; whereas a master's special object is to perfect himself in navigation, chart-making, pilotage, the stowage of the holds, handling cables, and anchorage.

1292. In their examination for seamanship and navigation at Portsmouth, the examination is the same both for masters and lieutenants, is it not?—I have not attended an examination for many years, but I believe it is so.

1293. Do you attach much weight to the stowage of a ship now-a-days? Are not ships now generally, as a rule, stowed by the dockyard officers? Owing to the practice of keeping ships in the first-class steam reserve, when they are brought forward for commission, are they not ready stowed; have they not all their stores on board?—They are; but I do not think that that takes away from the importance of having some efficient person superintending the stowing of them, and afterwards keeping things in their proper places below. In fact, there is more practical knowledge wanted now to get things into the smaller space that we have for them, and still to keep them handy.

1294. You have stated, have you not, that you think it desirable that the second masters should be removed from being down below, and put on deck?—They should be removed from having the sole charge of a deck; they never ought to be allowed to be confined to that one object, as they too frequently are; but there is no reason why they should not retain a general superintendence of the orlop deck and the hold.

1295. Would you see any objection to having a warrant officer as a sort of captain of the hold in charge of a deck?—I should be very glad to see a warrant officer in charge of a deck; but I think the hold would still be better left in charge of the second master. There are many duties which the second master is called upon to do which I think he ought not to have to perform; for instance, at the time when he ought to be on deck assisting the master in ascertaining the position of the ship, he is serving out grog, which he ought not to be doing.

1296. Which any warrant officer or petty officer could do equally well?—Yes, I am afraid we have not yet attained a standard in which it would be safe to put a petty officer to do that duty.

1297. I quite agree with you that there should be a class to assist the captain in navigating and piloting a ship; but would there be any disadvantage in choosing that class which we will call sailing officers, from the larger area of the lieutenants and masters included; choosing from 1,200 instead of choosing from 400?—If the 1,200 all have the same special training, you certainly increase your prospect of getting able men. I do not think with the present, or with any probable future class of lieutenants, you would get a better class of men for masters.

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1298. I understood you to say, that the training of second masters was down on the orlop and between decks?—Yes; but a master gradually begins with a small ship, and rises up to a larger ship.

1299. Why should not a lieutenant become a sailing officer in a small ship, be kept there three years, gradually rise to a large frigate, be there for three years as sailing officer, and then, with one year's experience, would he not be fit for a sailing officer in a line-of-battle ship?—That is merely introducing a change of names.

1300. But is it not choosing them from a larger area, and choosing them from a class of better educated men?—Of course, if you give a man special training there can be no possible objection to it; it is merely a change of names.

1301. In all other branches of life do we not choose the best man we can from the largest area, if we wish to get the best?—Unquestionably.

1302. And you do not consider that there would be any very great objection to selection from the whole number; for instance, if young lieutenants please to volunteer for this service, and will give the necessary information, you see no objection to those officers taking the duties?—It must be fairly explained that those officers put themselves on the footing of masters now. I should not wish to do anything that would put the masters upon a different footing. If those young lieutenants are to look forward to being afterwards captains of ships themselves, I think that would be taking a step in the wrong direction. You should make it worth a man's while to confine his attention solely to the object of being a good master of a ship; and if you put an object higher than that before him, I think you would destroy the great point of the special training of the masters.

1303. My view of it is that his education should be special, in order that he may be the better captain, holding the view which I do that every captain should be able to conduct his ship?—I think if the ultimate destination of those sailing lieutenants was to be captains of ships, you would injure the efficiency of the present class of masters; those men would look forward to being captains of ships. I do not say that you would not make of them better captains of ships; you possibly might do that, but that is not the question; yon would not get such efficient masters, because they would always be looking to leave that position behind, and to go on to something better. You want a man to make it his special and sole object to be the best man of his position, that is to say, the best master.

1304. Is not the key to the master's qualification their continuous service at sea?—One very great and one very principal one.

1305. It is the constant unceasing practice in shallow waters, is it not, that makes all our best pilots?—Unquestionably; it gives them their nerve, in the same way as it gives a sailor his nerve when he is in the top-gallant yards; it would be ridiculous to talk about nerves in such a position; they are not nervous, and they would not understand what it was, just from the very

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same cause—namely, their constant habit of doing the duty.

1306. Have you any further suggestion to make to the Committee upon the subject of the present inquiry?—None, I tkink, beyond the addition of that authority to the masters with respect to the officers of the watch which I have mentioned, and which I think should be recited in the instructions.

[The Witness withdrew.

Captain BARTHOLOMEW J. SULIVAN, C.B., R.N.; Examined.

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1307. YOU are a captain in the Royal Navy, are you not?—Yes.

1308. In what ships have you served, as first lieutenant, commander, and captain, and for what periods?—I served in the "Beagle" two years as first lieutenant; there was a senior lieutenant who commanded the tender attached to the vessel, and I did the duty of first lieutenant. As lieutenant in command I served in the "Arrow;" as commander in the "Philomel;" as captain in the "Lightning" and the "Merlin;" that was exclusive of harbour service; and I served as supernumerary captain of the "Victory."

1309. Your service has been chiefly surveying, has it not?—I only went into the surveying as lieutenant, and at that time I was not an assistant surveyor. I was brought up in the regular service. I served in every class ship from 26 tons to an 80-gun ship, principally in a frigate, and nearly all my time as midshipman in a frigate.

1310. Since that period you have been in surveying ships?—Yes.

1311. Are you aware that discontent exists amongst the masters of the Royal Navy?—Yes, I have heard so, for many years.

1312. Do you know what the cause of that discontented feeling is?—I believe it is the natural consequence of having two conflicting classes in the Navy, and of the anomaly of having such a class as masters in these days, and that officers who feel their value are not content to be left in a subordinate position to the executive officers in the ships, and as they feel that the more, they forget that they joined the special class which they knew would always be in that position, and the consequence is that as they have risen to the higher ranks, they have felt their value, and being naturally discontented with their position, they have wanted to better that position.

1313. How do you account for their having that feeling at present, seeing that it was not so formerly?—I think many years since the officers of all classes were more content to submit to the position in which they were kept, and the treatment that they received; and as things have bettered generally in the service, all classes seemed to have wished to better their position, more especially those classes who did not rise in the regular line of the service; and for a time extra pay, and extra retirements, and extra relative rank, apparently satisfied them; but as that has gone on, as they have obtained that in a great measure, the masters have felt that they wished to have executive rank also. I may say that I have perhaps more intimate friends amongst the masters than most of my rank; I have a near relative a master, and therefore I have discussed these matters with them for the last 15 or 16 years particularly, and it is 16 years since I wrote and published a paper on the subject, in which I was assisted, and my views were coincided in, by two of the very best masters or the day; and from that time to this I have always discussed the matter very much with masters, and have taken a great interest in the subject.

1314. Your personal experience as captain has been in the surveying service rather than in the regular line, has it not?—I should say perhaps not so, because in my surveying service I have been so much thrown into the other ships, and have been engaged in the working of other ships, and with masters of the regular service, that I have been very differently placed. For instance, when serving in Parana, the greater part of my time was spent on board a large steamer, with the masters working with me, and in the Baltic I was often in the largest ships in the fleet and in the flagship, working with some of the best masters in the service, therefore I have been brought much more closely into connection with them in the service than the ordinary commander of a small surveying vessel usually is.

1315. You have been brought very much into contact with masters in general, but not I presume in the ordinary work of masters in seagoing ships?—In the ordinary work of navigating a ship from port to port, not since I was a midshipman; but in the much more important work in shore, with intricate navigation and pilotage, I have been very much brought into personal contact with masters; more so than most officers, I believe.

1316. Do you think that they have reasonable grounds for the feeling of discontent which exists amongst them?—I do not think myself that they have reasonable grounds for complaint. I think they had reasonable grounds so long as they were paid as badly as they were, and their retirement was not what it ought to have been; but I do not think they have reasonable grounds for discontent as to their position in the ship. I wish clearly to be understood upon this point. I think it is very natural that a body of men who are executive officers, the best of whom perhaps only rise to the higher positions of their class, should feel when they get to that position the inferiority of their position with respect to the lieutenants; but although I think that is natural, at the same time I do not think that there is any reason, on public grounds, for that discontent, because I believe were that desire in any way acceded to it would be the ruin of our service, inasmuch as it would more than ever make the regular officers of the service discontented. It would establish the present principle, that other officers are not supposed to know anything about pilotage and navigation, while, on the other hand, it would immediately cause great discontent on the part of the lieutenants, and there would be nothing but conflicting feeling and jealousy between the two classes, more than there is now, and then I should consider that the lieutenants would have quite as much ground for complaint as the masters have now.

1317. Have you ever heard that the masters are discontented with their designation of "master?"—No, I do not think I have heard that alluded to. I should like to mention the reason why I first

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first turned my attention to this point, because it was rather a striking one. I think it occurred 15 or 16 years ago. A 12-gun brig was lying at Spithead; I think it was about 12 o'clock in the middle of the day. A signal was made to her to proceed to sea, for the relief of a vessel ashore near St. Catherine's; the signal of inability was made; the question was asked what was the matter? The answer was, "The master is on shore." "Are the other officers on board?" "Yes." "Proceed to sea immediately." The inability signal was again hoisted, the commander refusing to start his anchor till the master or a pilot was sent to take the vessel out of Spithead. I was so struck with that circumstance that I felt of course it was a great disgrace to our service, and with me the first feeling was that the Admiralty would of course supersede the captain, but the next thought was that they could not do so, because it was only the result of a system which had been fostered in the service, and the commander had been brought up to believe that he would have a master, whenever he had the command of a ship, to do the pilotage, which the captain never attended to, and consequently he was afraid to undertake it; I am sure he would not be singular. I have known officers quite as incompetent as he was to take the ship through the simplest place.

1318. The masters appear to have advantages over their equals in the executive branch in respect of pay and half-pay; do you look upon those advantages as a set-off against the limit placed upon their rank?—Yes. I think, considering they have nothing else to look to, and that they have only to look to the emoluments and different appointments in connection with that rank for their reward for good service, it was very natural that they should look to have higher pay than others of their corresponding rank, namely, the lieutenants, who have, to a certain extent, though much less than is generally supposed, the higher ranks to look to. On the other hand, there is this to be considered, that only I believe about two out of ten lieutenants ever rise to the higher ranks out of the large body of lieutenants, many of whom have served many years, and have only not got on from want of interest, and they naturally feel hurt at being kept on much lower pay and retirement, and they have no rank to look forward to any more than the masters have.

1319. Do you think it would be beneficial to Her Majesty's Naval Service in general if the class of masters, second masters, and masters assistants were done away with as a separate branch of the service?—Most decidedly. I think that the present system is merely the result of the old custom, when sailors only navigated ships, and soldiers fought them; and that has been handed down by degrees until the service is totally altered, and yet the anomaly of the separate class is retained; that is the only reason that I have ever been able to see in the slightest way for having two classes of executive officers in a ship.

1320. In the days of Nelson, do you think that the present system did not answer?—I think it has answered in one respect in having a class of men in our ships who have attended to this special duty, and who, on the whole, have taken very good care of our ships. So far it has answered; but I think that even in the war time officers were not so entirely cut off as they are now from learning any navigation or pilotage. I believe that the large extent to which young officers used to go in charge of prizes of the old war time gave them a good deal of practice in navigation and pilotage: all that advantage has been cut off of late years: and I believe, however well the senior masters may have done their duties in the ship, and no one will deny that they have performed them well, yet I believe it has always been at the expense of the service generally, and at the expense of the thorough efficiency of our young officers, and consequently of the commanders and captains of our ships.

1321. That is to say, you look upon the masters' work as well done at present?—Yes; in the higher branch that is so, but certainly not in the junior. I believe the masters themselves allow that; and I am sorry to say that has been in a great measure due to the wrong system, which has been hardly fair to the second masters, and which I myself, years ago, tried to get altered. The system has been that the masters have learned their work as junior masters; and with the exception of a few who have been in surveying vessels, and in lieutenant's commands, they have gone into the first ship as master not knowing one single thing of the work that they have to do; and the consequence is, that if you look to the work of masters in our sloops and small class vessels, when they first go in, I believe you will find that the work in many cases is done so badly that they really would be better out of the ship. I could mention numerous instances to show that that is the case. I know that the second master of a flag-ship in the Baltic told the master that he did not dare to take a vacancy if it were offered him, as he knew nothing about navigation or pilotage; and it was only by the master urging him to do it, and saying that he would get on as well as others, that he was induced to take it; and I could mention instances of the utter incompetency of our junior masters in the Baltic, beyond what any man who knows anything of navigation and pilotage would conceive possible. The blunders of the youngest midshipman who had been two years at sea would hardly be greater. I know particularly, in the case of one commander, he told me himself, that though he had never paid attention to navigation before, he was obliged in a very intricate place to pilot his own ship, because his master was utterly incompetent. But this class seem rapidly to improve; and it is remarkable that in the class of masters interest has had less effect than in any other class in the service; because the senior officers, the admirals and senior captains, like to pick a good master for their ship, for their own ease and convenience; and therefore the really best rise to the top. Many of those young masters rapidly learned their work, and had ability for it, and all those that had superior ability rose to the higher positions, whilst many were weeded out in some way or other; some went to the Coast Guard, and other things; so that really the best rose to the top, and by the time they had got into the large frigates and the line-of-battle ships especially, you had a very valuable class of officers, who were to a certain extent the pick of the whole class that had entered the service. I may mention, as a very recent instance, one of our sloops was lost, with regard to which I have no hesitation in saying that if the master had been left behind at sick quarters when she sailed, she would

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would have gone safely to her destination. If the captain and the other officers had been left to take that ship the voyage, there is no doubt that she would have been taken safely, but the ship was lost by the captain's caution in shaping the course being set aside by the master, and she ran on shore, decidedly, I may say, from the incompetency of the master, for this reason, that a common simple mode of ascertaining the exact distances in broad daylight, when passing a well-known rock high out of the water, would have given the distance to a nicety, and any man fit to navigate a vessel would have availed himself of it, if he was going to shave close, and so exactly clear the reef. All these simple plans were neglected or not known, and the ship was run on shore for want of them; while the commander, feeling perhaps his want of confidence in taking the ship so close, was going to give the reefs a much wider berth, one that there could be no doubt about, if he had not been overruled by the master. Of course I suppose it is taken for granted that when masters first begin their work there is no possibility of their having any more ability for it than the ordinary officers of the services, or at least they start on an equality. Now, certainly it was remarkable, where I have had experience of young lieutenants, very young men, being put into command of gunboats, with no assistant master or second master, or any one to help them, how well they handled the vessels, even in very intricate pilotage waters, and how rapidly they learned the work; and certainly they showed that if they were only from the first allowed to consider that they would have eventually to do that work, and to become good pilots and navigators, there is ample material in them for making as good officers of that class as any in the world. But the fact is, that though even now they are supposed to be trained better than before as youngsters, and made as scientific as education can make them or supposed to be so, really by the present system you tell a young officer, "As soon as you pass your examination for lieutenant, you need care nothing more about these duties at all; and unless you want to go into the 'Excellent' as a gunnery officer, you may give it all up;" that is the practical effect, because everyone knows that an ordinary day's work in a ship is a farce. Some captains encourage a better system amongst the youngsters, and a few young men here and there take a pleasure in it, and do attend to it from choice, and perhaps occasionally a young lieutenant or two may show a taste for it; but, generally speaking, they are led to believe that they have nothing more to do with it.

1322. Although you think that the junior master very frequently is inefficient, has not the result of the system been to gain very good men for our large ships?—Certainly, with very rare exceptions. Of course there are some few men who get on perhaps by flukes, as they are called, or something of that kind; but with rare exceptions I believe them to be the picked men of their class, and a very valuable body of men they are.

1323. In the event of the class being done away with, to whom should the special duties now performed by the masters be entrusted?—I know that there is a difference of opinion on that point. I have felt that for the sake of making the captain acquire a thorough knowledge of the work it would be better to leave the responsibility to him of selecting whatever officers he may find in the ship in which he happens to be (certainly in a frigate or line-of-battle ship) who are best calculated to help him, without any special officer being selected or trained for that purpose. I have known, and I daresay every one here has known also, that in those ships, certainly in a frigate, and more still in a line-of battle ship, there are always one or two officers who especially like the work, and who encourage it among their juniors. I may instance a frigate, in which I served four years as a midshipman. On both commissions there was a young lieutenant who took the greatest pleasure and pride in those things, and he gave a taste for it to two or three of the midshipmen in the ship, who certainly were much more efficient in these things than you ordinarily find among young masters and second masters, and I believe that such might be found to help the captain in every ship. I happened to be in a ship as midshipman, though only for a passage home, in which the captain navigated the ship without a master for nearly three years, and it was done by two midshipmen, and after I joined her by three.

1324. What class of ship was this?—A small frigate; and instead of sending in their day's work as a matter of form, they knew that they were navigating the ship, and they took a pride in it, and their observations were taken separately, and not only ordinary ones, but not a day passed bye, I believe, in that vessel, but every observation that could be taken was taken; for instance, night or day lunars every day were taken, by those midshipmen, and once now and then they were checked by the captain; but he relied on their observations, and on one ocaasion, having relied greatly on a very good chronometer, a very great error in that chronometer was detected, after firing at a mark, by a steady succession of lunars, and correcting the chronometer with those lunars in very thick weather, an island in the Atlantic was made to a very great nicety, and the Lizard, in the same way, in a south-west gale, and I do not suppose that any ship was ever more carefully navigated. I believe that that system would work well in any ship; but I know that that is the feeling only of a minority even of those who wish to see the masters done away with; and in urging that, as I did some years ago, I drew up plans, and urged upon the First Lord of the Admiralty the importance of considering this question, in order to meet the wish of what I knew to be the majority. I drew up a plan for the purpose of doing away with the masters, and of supplying their place. I have never shown it to any one who has not been satisfied that their place would be well supplied; and I have never had even a dissenting voice from the masters with whom I have spoken on the subject, that their place could be thoroughly well supplied by the plan that I propose. There are two questions; one is, how you will replace them, and the other, how you will do away with them. That is to say, in doing away with them you must be very careful to do justice to the present existing body. Of course that is a totally different question from supplying their places. I believe they could be done away with without much danger, and they could be done away with at once, if necessary; but I believe it would be much the best plan to let them gradually wear out, by entering no more in the class, and by training up a class which should replace them in the

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the navigating duties. With respect to doing away with them, I think you would possibly find among the very junior masters a few, but not many, who would think it worth while taking their position in the lieutenants' list, and taking their chance in the new line; but I do not think there are many; perhaps here and there there may be one who would pretty well know that he was likely to come forward, and become first lieutenant, and therefore might take it, but those who have got a few years up the list would not like to lose their pay, and the prospective advantages of retirement. But I think to clear the list from the head you could employ many in what I believe they ought to be employed in, which would really be an advantage to the service, that is to say, in establishing more troop and store ships than we have at present. I believe it would tend to the public advantage if we had more troop ships, and did more of our own work with Government vessels; and I think that would be a very proper position to put a senior master in who liked it. I would put them in that position, with the rank of commander, and I would give them from that the dockyards, just as at present, as long as masters last. And I may say that, with regard to them, I urged upon the First Lord of the Admiralty giving the commander's and captain's rank to the present masters in the dockyards, which was shortly afterwards done. If you took, which I believe you might, masters for something like 30 troop and store ships, and you took the young masters, second masters, and assistant masters for the officers that would be required for those ships, you would make vacancies at once in our small sloops for beginning; and in that system all the masters would be moving up, and the second masters who choose to, of course, would have to go on the masters' list. But I think that some of them, if they were fit for it, and were recommended by their captains, and liked to take their position in the mates' list, might do so, as you would get many very excellent officers from them, in a class which I think, even at present, wants more officers.

1325. Is the scheme which you have mentioned printed?—I think not, for when I had that letter to the First Lord of the Admiralty printed, I had not gone into the question of how I would supply their place, because I left that open. It is only since it was printed that I have gone into this matter; but I think I see no difficulty in the way of employing the masters, because in none of the ways which I have mentioned would there be any hardship, or would their position be altered at all. Then there comes the junior class, or assistant masters, a number of whom have been entered. At first, I thought there might be a difficulty about them, but I believe there is none, for I have heard from a master, who has been in the Mediterranean in a large ship for many years, that they avowedly enter the service as assistant masters only as an easy way of getting on, instead of going as apprentices in merchant ships, where they would have to pay a premium, and, by getting into the service, they get pay enough to live upon, and a respectable position until they pass for second masters; and then, as soon as they do pass, they look to making it a stepping-stone to the merchant service again. I know that that is avowedly the intention of many of them. Therefore I do not think there would be any difficulty, even in the junior ranks. Then, with respect to supplying the place of masters, I think that none can doubt that if from our regular service, those officers who choose that line, and who were the most capable for the performance of those duties, were selected after they passed their examination as mates, by thoroughly practical examinations both afloat and on shore, and if advantages were held out to those who joined that line, sufficient to induce them to join it, you would get the best officers in the service for those duties coming forward to join this new navigating class which I would establish.

1326. Do you think that the ambitious young men who looked to getting on in the service would join that line in preference to becoming first lieutenants, and getting on in that line?—Certainly I do. I think if the Admiralty treat this new line as one that is not to look for promotion, and shove them on one side, of course they would not do it. But I would look upon it that instead of any drawback it should be a feather in their caps. I think we have now many young officers always looking to the gunnery line, their tastes lying that way; they have taken a good certificate from the "Excellent," and like to become gunnery officers, and do not look at it as any hindrance to their becoming first lieutenants, or getting on in the service; and no more I think would this class, if you made them a navigating class; I think you would then have three classes in the regular line of service.

1327. Do you think that you would get as competent men as our senior masters of the present day, by bringing the lieutenants on in that way?—Most certainly; because I should say, allowing that they all start on equal terms as to ability and education, you would get even a better class, because you would have a pick first for them, even in the junior ranks who have selected the duty from choice, and as being most fitted for it; then you would have them again in the higher ranks, going up, as it were, to the pick of those promoted to your higher ranks. Now, supposing that they joined as mates, or sub-lieutenants, and that they went only into small sloops and small commanders' commands, as soon as they were qualified, and advanced to lieutenants in the next sized ship, and so rose up, you would probably have in every ship more than one qualified officer of the kind, as you have more than one qualified gunnery officer. Certainly, by the time they could come to the large ship they would have had many years' experience, and when they did at last merge in the higher ranks of the service they would furnish much better qualified commanders and captains, so far as these special duties were concerned; and if, as would sometimes happen, one of those officers, who was perhaps a second lieutenant of a frigate, we will say of five or six years' standing, was also such a good sailor as to be well qualified for it, if he had the offer of becoming first lieutenant, he might think it his interest to merge the navigating class in the first lieutenant, and you would have another navigating officer appointed to the ship, and so might have two in the ship, equally competent, in case of accident; and the same where the commander or captain of a line-of-battle ship might have been the navigating officer of a frigate; and so you would at least considerably improve the upper classes for those special duties, as well as give encouragement to the younger officers to choose this class. But of course that would depend upon how it was worked by the Admiralty. If the Admiralty looked to that position as one giving them

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them a claim for advancement, just as gunnery lieutenants and first lieutenants ought to look to their position as a claim to advancement, then surely a young officer, particularly one without interest, would gladly take that line in the hope of its giving him a stronger claim to promotion,

1328. You do not think that a captain should be without the assistance of an officer similar to the master, at present?—No; from all the opinions I have heard, and from all the information I have been able to get, I think it would be best to establish the class that I have alluded to; and I think no one can possibly doubt that if you pick your whole service to get that class, you would at least get as competent a body as you can get by entering them now as younger officers in the masters' line. I may mention that I have seen remarkable instances of the way in which many young officers, who perhaps would have risen to be captains without ever thinking of pilotage work, or turning their attention to it, or having their capabilities in that direction called out, when circumstances having given rise to their being required to do the work, have shown the most remarkable aptitude for it. I wish to keep perfectly clear of alluding in any way to the surveying service, or to men brought up in that service, because, more than people generally suppose, it is not the case that the surveyors are always the best for those duties. They may be very good men for a survey, and they may make a beautiful survey and drawing of a place, but it is a totally different qualification from the work of handling ships in intricate pilotage waters; and I have known surveyors, under my own command, whom I could not trust in that work. Where only one master out of five or six could do it, or could be taught to do it, I have seen a young lieutenant here, and another there, who rapidly became excellent hands for it, and were able to take charge in places where, perhaps two or three months before, they would never have dreamt of being able to take a ship, and I think you might cull from the whole service those men, whether they have been in a surveying vessel or not, and you would not find any larger proportion of them that have been brought up in surveying vessels than you would in the ordinary line of the service, only you want some inducement to cull them out from the regular line of the service, and to put them in this position.

1329. You think that the great advantage of a scheme of this sort would be making the captains and commanders more efficient as navigators?—I think they would be very much more so, and I think it would cull from our whole service this class of officer, which is very much wanted for the general duties of the ship. I should look to making a much more practical as well as scientific body of that class than you can expect the masters to be.

1330. Still, at present do you consider that the masters of our large ships are really useful men in the position that they now hold?—Yes, for the ordinary pilotage and navigation of the ships in known pilotage waters; but to go into any new place, and do work, for instance, on a new and unknown coast, up an unknown river, or on an enemy's coast, in short where you have no charts, and all the buoys, and lights, and marks are removed, they are not a bit more so than any other class of officers. I have found that they remarkably fail directly such a case arises, and naturally so; they have had no experience of it; and that is the only time that surveying officers have any advantage over the other officers; and only a few surveying officers I have ever seen, and but few masters, come out that are able to do it; but, as a body, at present you cannot look to the masters for that work if you want a fleet piloted on an enemy's coast in an intricate navigation; and I think we want very much to keep in view, in any re-organization, the wants of a fleet and squadron on an enemy's coast in war, because at present we have had a few surveying officers accidentally on the stations, surveying, when those expeditions have occurred or war has broken out, and they have supplied a certain want that could not otherwise have been supplied. They are fast wearing out; our foreign surveys, which alone made them efficient, are almost coming to an end. I can appeal to Captain Washington that he hardly knew where to look for an officer to go to Mexico, the other day, had one been wanted; and it was with difficulty that the North American fleet could have been supplied with officers competent for that duty, had war broken out. No one can doubt the necessity of having a class of that kind. I think we might find that the scheme which I proposed would be a means of supplying the navy with that very important class for the more difficult practical work which is required in case of war.

1331. From their previous habit of navigating, did not the masters in the Baltic become quickly very efficient?—A certain proportion of them did; for instance, certain men who, had they been brought up in the regular line by the system which I proposed, would have come out into that class. A certain proportion of them always show that aptitude; but, as I have mentioned, I have seen only one out of three or four in one squadron who was up to it, while I could take a young lieutenant here and there from the ships who in a very short time would become just as capable as the best masters; but you want particular qualifications for that duty, and the ordinary work of a master, that of piloting and navigating ships in the ordinary service, does not give them the necessary qualifications for it. Of course, the handling of ships helps them very much. But I may mention that in one very intricate place, some 20 miles long, in the Baltic, after I had taken a squadron of line-of-battle ships through the place and put a buoy on every single danger, and a few ships had gone up under masters, a complaint was made to the Admiral, and he sent for me and told me that the masters complained that they could not find the channel; and, though I had buoyed out the numerous passages and channels, they did not know which to take, in many cases, and before they were satisfied to take their ships up and down I had to go and whitewash every single point and spot that had to be left on one side all the way up. That was for want of experience in that practical work. But in a very short time, here and there, as soon as they had gained a little experience, you would find a master coming out and becoming as perfect a pilot as any man could be; but so would you have had in any other class in the squadron had they been given the same opportunities and the same experience; the pick of them would have been equally competent, because it must not be supposed that, entered as they are, without any selection, the fact of being

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a master can make a man any more competent for this special work that I allude to than any other class of men.

1332. Supposing the class is not done away with, do not you think that much could be done to improve the present education and bringing up of masters?—I think that if the class were retained it would only be just that the second masters should have more opportunity of learning their work before they become masters. I felt the injustice to them so strongly, that after the first year in the Baltic I endeavoured to get a minute issued by the Admiralty, ordering that the second masters should help the masters on deck, and not have the work of the holds; and if they are retained it is only just to them that that should be done; but I feel that anything done to make the class permanent, and to prevent the anomalies, as I consider them, being done away with, will be such an injury to the service that I would not think of it for one moment.

1333. Supposing the class not to be done away with, how would you improve the education of masters' assistants?—I think that masters' assistants, entering as they do now, pass quite as good an examination as any young boy ought to on entering the service; and I think if they had the practical work as assistant masters and second masters on deck, under the master, and attended to those special duties, certainly, if they are capable of doing the work, they would have every opportunity of learning it.

1334. Do you think that you might give them a certain amount of training in surveying vessels?—No; I do not think you could possibly do that. I think it a mistake, supposing that you must look to your masters for that duty on an emergency, because you will only find a certain proportion of the masters capable of doing it, in the same way as you find only a certain proportion, according to the number, out of your regular line of service. You would not find the education in the surveying vessels specially adapted to make masters of them. I think it of great use, and they would of course be benefited by certain work in surveying vessels, but not in the ordinary navigation of ships. There would only some of them be at all fitted for the higher duties that I allude to, because there must be certain qualifications in a man which no surveying vessel in the world could put into him. You may find that not more than one man in three or four among the surveyors that is capable of doing the work that I allude to.

1335. Then, if the class of masters is retained, do you think that it would be no benefit to Her Majesty's service that the masters' assistants should receive part of their education in surveying vessels?—I think a man who would become a very good hand would have a little advantage from having been as a youngster in a surveying vessel, but not much; and I think there would be a serious evil in that, inasmuch as you want to train up in the few surveying vessels that you have in the service officers of the other class sufficient to keep up the number, and if you do not establish a new class, and constitute a surveying service, it is very important that, with the few surveying vessels that there are, you should be training the regular line of service instead of masters, instead of gradually letting the surveying service fall into the hands of the masters.

1335*. Allowing that that might be an injury to the surveying service, do you think that you might bring up young masters' assistants to be better masters?—In some respects you would, certainly; but I think that there are so few surveying vessels that you could not possibly put the masters' assistants in them, and that if you excluded the midshipmen and lieutenants from our surveying ships, which is too much the case now, you would only have people good surveyors that you can pick out of our masters' class; whereas I think you want them out of the whole class of the service. The great fault of the present day is, that through the absence of advantages to surveying officers sufficient to induce young officers who are fit for it to go into the surveying vessels, you cannot get young officers to go.

1336. Your objection would be that, although that might make the masters efficient, it would do harm to the service in other respects?—I do not say that it would make the masters efficient. I say that it would be a slight benefit to the assistant master having served in a surveying ship, where he might have learnt a little that he would not get in any other ship; but I do not think that sufficient in any way to make it worth while to put him through any course in a surveying vessel, because not one out of four, when he went into a surveying vessel, would really learn much there; he would only learn a little sounding, being such a young hand as that; in fact I do think it is a great advantage putting youngsters as youngsters into surveying ships. I believe that if you pick the best of your young midshipmen, after they have been some years at sea, or even mates, or even young lieutenants, for your surveying vessels, you will get perhaps the best officers; whereas if you bring them up in surveying vessels you will only find one man here and there able to go on with the duties, and even if they go on with them, not very fit for it; but to get those that are most desirable you want to pick them more from the whole service.

1337. You would, in the first instance, begin with the lieutenant as navigating officer?—I would begin with the sub-lieutenant. I should, perhaps, add that that is part of the scheme which I urged, that in any case I should propose making the sub-lieutenants serve longer as junior officers than they do now; so that we might have some really executive subaltern officers in the service to do the duty under lieutenants, which now we have not; and I believe that a larger number of subaltern officers, even if we reduced the number of the lieutenants' class, is very necessary in the service. The service has fallen back now almost to lieutenants and midshipmen, and you want very much, I think, in the navy, a man answering to the first lieutenant in the army. I propose that they should serve four years in that rank under any circumstances; and they would be much better for the class that I propose for navigating a ship, because they would have at least four years' experience in sloops before they would as lieutenants go into a larger ship.

1338. With the present system of promotion to lieutenants, how would you promote the surveying and navigating officers?—In the same way as the junior lieutenants; only they would be too short a time as sub-lieutenants, and the class would have to be then a smaller class in a ship than they otherwise would be if the mate served longer. Perhaps the same man would be in a sloop as a lieutenant at about the same age

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that he would otherwise be in the same ship as a mate if he waited longer for his promotion.

1339. How would you ensure having the most experienced navigating officers in the larger ships?—Of course you would have them rather senior in the larger ships, and they would have had more experience in sloops and frigates, because the selection would rest with the Admiralty, and they would naturally not select a man for a line-of-battle ship until he had passed through certain grades. Of course there would be some power of selecting the better men for the larger ships, as a step to promotion, and as a reward for their service, as at the present time the best masters are selected for the larger ships.

1340. In that case the best navigating officers ought, as a reward, to be early promoted, ought they not?—I think that the navigating officer, the gunnery officer, and the first lieutenant, should all look to their position being the best step to promotion in a reasonable time; of course always excluding those promoted for special service in action. Then you would have all your young officers looking to those three most important positions as steps to promotion.

1341. Would you have commanders as navigating officers for the heavy ships?—No, I think not, because in a squadron you might have a commander in the senior officer's ship of this special class, which you may call the surveying class. You would require a staff, with all commanding officers of squadrons and fleets of that higher class to assist the commander-in-chief; but I think that a lieutenant of the navigating class would be quite sufficient for a line-of-battle ship. I suppose he would not go into a line-of-battle ship until he was a lieutenant of from four to six years' standing at least, and had had six or eight years' experience as navigating officer; if he is ever fit for it, he would be perfectly fit long before that time; and then, when he goes to the commanders' list, you will have another stepping up in his place, and you will perhaps have him, as I said before, a commander of a line-of-battle ship with two navigating officers, and that may very often be the case if the Admiralty have more navigating officers than they have vacancies for. Perhaps in the larger ships they may have a second competent officer, serving as an ordinary lieutenant, waiting for a vacancy as navigating officer. Therefore, I think in large ships you would often have two; and the bare fact of there being an inducement held out to such a class to qualify themselves would make so many young officers come forward that I think you would have more perhaps than you could employ.

1342. Do you, in your system, propose to throw more responsibility upon the captain?—No. I think of late years there has been a strong feeling that the responsibility is shared by the master with the captain more than it used to be. I recollect some years since an idea prevailed that the master was entirely responsible; but the results certainly of many courts-martial of late years have established that the captain is equally responsible, and I do not think that you would want in any way to vary the position with respect to the captain of the navigating officer from that now held by the master. The only difference would be that his duties would be exclusively navigating; he would not have the other duties to perform in the ship that the master now has; and that I look upon also as a very great advantage, because it is too much the case that our younger officers neglect very important duties, and they never hear of them, or never attend to them, because the master and the second master attend to them. I allude especially to the stowage of the holds, and it is even too much so with regard to the rigging of the ships. I believe that the system of the French service is very much better for the general efficiency of the officers in that respect to our own, because there they take their turn at all those duties, and they have experience of every one of them before they rise to the higher ranks; and there is nothing that I have been more struck with, even among our better young officers, than the utter ignorance of the stowage of the holds, and more particularly often of that very important work, the handling of anchors and cables. That has been too much the case; perhaps of late years it has not been quite so much so; but even those duties have been considered to belong more especially to the masters, and I think it has been a very great evil in the service. The work of clearing hawse and laying out anchors and cables, all work that ought specially to be the duty, I think, of the first lieutenant of the ship, and that young officers ought to pay particular attention to, has been, as it were, left especially as the work of the masters, and so others have neglected it; and I think there is nothing which our officers are more deficient in than in the usual work of handling cables and anchors, particularly in boats when ships are on shore, and work of that kind, and there is nothing more important.

1343. In substituting the navigating officer for the master, do you think that that will throw more work in the navigation of the ship upon the captain?—Not the slightest, because I believe that however competent a captain might be to navigate his ship he would not take much part in it himself, particularly when he knew that he had a good navigating officer, and perhaps a second one, or at least he knew that there were some one or two among them who sent their day's work up to him besides the navigating officer, whose observations he could thoroughly trust to; he would pick out of them two or three days' work, and compare them with the navigating officers, as a check, and if he was very competent, and understood the work, he might occasionally, in making the land, check them himself. But I can only speak from experience. I never had a master under me doing the navigating work more than the other officers, and I hardly ever took an observation when in command at sea: I trusted to two well-known officers, of whom the master was one. In the surveying vessel that I was in before as lieutenant, one officer and the master attended to the navigation, in addition to their ordinary duties as officers of watches.

1344. Knowing what the duties of the captain are, particularly in a fleet, do you think it would be objectionable that he should have more of the navigation thrown upon him?—I think the reverse; the navigation he would not have in the least degree more thrown upon him than at present.

1345. But do you think it an objection that he should have more responsibility on that score?—No; I do not think any more obligation could be thrown upon him than at present; that is to say, to see the observations of the officers, and to see the position of the ship on the chart; but directly the

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the ship gets into pilotage waters I think it would be very desirable that the captains should more generally attend to the pilotage of their own ships, or at least be competent to do it, and to see that those under them were doing the work well. Unfortunately I think that that is the great difficulty in our service; that particularly men in command of ships, and many of the senior ones, have so completely left those duties in the hands of the master that they have no confidence even in themselves. I have had many instances of that kind, particularly during the war, while the fleet was in the Baltic, of the younger captains and commanders coming to me, and describing the blunders that they have got into through the ignorance of the master, and expressed strongly their own deficiency in all those points, and therefore they were obliged to entrust them entirely to the master. In more than one instance, they described how they were obliged to take the duty out of the masters' hands, although they felt no confidence in themselves.

1346. You think then that the captains should be more competent than they generally are to superintend the navigation, but not that they should actually take the navigation into their own hands?—Navigation and pilotage are quite distinct. I think it would be very much better if a captain when in intricate waters were himself as perfect a pilot as any one, because he cannot then have the ordinary ship's duties or anything of that sort to attend to, as his whole attention must be given to his ship and to his pilotage on deck, so that that cannot take him from anything else, and the more competent he is, whoever is under him, the safer will the ship be piloted.

1347. But a captain with a fleet has a great deal to attend to, has he not, especially when they are in pilot waters, as they frequently are? —I think with a fleet in pilot waters the captain at the time must attend strictly to the pilotage. If you call sailing in line through a channel, led by another ship, pilotage, that is no pilotage. All the fleet follows the leader, and the captain's attention may be directed merely to keeping his rank, the same as in the open sea; but where, as occurred once in the Baltic, the whole fleet were in the midst of rocks and shoals, and hardly any anchoring ground, in a strong breeze, overtaken by a dense fog, and the captain is left to his own resources for hours and hours, then is the time when the captain's ability to pilot and handle a ship is everything; and those cases will always occur in important services, particularly on an enemy's coast.

1348. Have you had conversations with French officers on their system?—I have, occasionally.

1349. Do you happen to know what they think themselves of their own system?—I have never heard them speak of it particularly, further than this, that the turn of duties that they take gives them all a knowledge of the work in which our officers are deficient. I have found that the French ships in ordinary navigation from port to port, and in all the work such as masters ordinarily perform, are handled as well as ours; but directly they get into pilotage waters, or in difficult and intricate places, then they are deficient. I have always found that the English officers had to help them, and take charge of them, just like our own ships; but in that they were no worse than our own ships were, for directly it came to that class of work only certain officers who had been trained to it, as it were, were qualified for it; and in ordinary ships, neither the master nor the other officers, except a master here and there; for, as I said before, there was always a certain proportion of them, in whatever rank they were brought up, who make first-rate hands at the work; but with that exception, the ordinary work of a master was no more available when you came to that particular work than the qualifications of the French officers were.

1350. In that particular work, the experience of surveying officers came in very usefully?—Yes, decidedly; in fact, I may say, that almost without exception, the surveying officers, unless masters had experience of that special kind of work, and happened to be good surveyors themselves, did the work. I do not mean that all surveyors could do it, because, as I have said before, some of them cannot do it; but I have known masters quite equal to any surveyor, because they have had experience in that branch before; and occasionally you will find a master who is specially adapted for pilotage, and therefore has become a remarkably good pilot; for instance in the River Plate, which is a very intricate navigation indeed for about 100 miles from Buenos Ayres to Monte Video, there would be one or two masters in a squadron who would pilot the rest, and get the pilotage for it, and they made better pilots than most of the pilots of that river; but they were an exception; they were officers who at any time would have made excellent pilots; but I have found, as a rule, that the master had to be trained to that work, when it was new to him, just as much as any other officer.

1351. It has been stated that many of the French superior officers who were in the Baltic looked up to our system, or something approaching to it, as being preferable to their own; have you ever heard that stated?—I think not, as bearing upon this question of the masters, at all. I think they found the want of a class of officers accustomed to pilotage work in new and intricate channels: but that did not bear upon the masters. Our surveying officers took their ships through intricate navigation, the same as they took our ships. Our masters, as a rule, were not piloting the ships until the channel was buoyed and marked for them, and then the French officers took their ships too; but when it was any new work through channels not buoyed or marked, and where certain knowledge was necessary, then the surveying officers had to take the French ships as well as the English, and they would have wished very much that their officers could have done the same. I know that allusion was specially made to that, because the French admiral asked me to try and train some of the French officers to that duty, and he told me that he would pick an officer from each ship—I think 25 altogether—or something of that kind, and select a small vessel, with a commander that he thought most competent, and put all the officers on board, if I would teach them the pilotage, and take his ship up and down the channels, and point them out to them. I think any remarks made on the navigation of the Baltic must have alluded to that work, and not to the ordinary pilotage and navigation, which would clearly be the masters' work. I should like to mention one circumstance, as showing the evil effects of the system, and how it tells upon the incompetency of the officers. I am almost ashamed to mention it, because I think it is very disgraceful to our

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service, but it is too much to the point to be omitted. In bringing up the fleet at Spithead the second line anchored very much out of its line, all but one ship, and the signal was made to the ships to weigh and take up their berth between the flag-ship and the ship that was in her right position. They had nothing to do but to weigh their anchors under steam, and steam a-head a cable's length or so, and keep their right distance from the flag-ship. The captain in one of these line-of-battle ships, as soon as the signal was made, went on board the ship that had anchored in her right position, and said to the captain, "Do send your master on board to place my ship, for my master is in the sick list." The captain of that ship was actually incompetent himself to place the ship in the line, and was obliged to go to another ship to borrow a master, because he was incompetent. I think that that should occur in our service was rather disgraceful.

1352. You look upon that as an unusual case, do you not?—Yes, I hope so. But I have seen many cases which equally convinced me that the present system is wrong.

1353. I have been in the habit of seeing lieutenants and midshipmen taking their sights and observations, and keeping the reckoning of a ship very correctly, even where there was a master. Do not you think that with our present system, if that could be more fully adopted, it would improve the present executive officers in that branch of knowledge?—No. I think as long as you have a special and different class of officers who merely have this duty to perform, there will be no inducement, except a liking for the work among a few, that will make them do it; and then I think that dies off before they get many years older. So much depends on the captain. Perhaps in one ship the captain will have encouraged this feeling amongst his youngsters, and a few of them will be very good hands at it; but perhaps in the three ships that you next meet with, the captain does not care about it, and the youngsters have just dropped into the habit of sending in their day's work in the ordinary way, unless there happens to be one young lieutenant on board who, perhaps, is very fond of it, and who gives a taste for it to a few of the others. I think it is merely the individual captain or officer of a ship that makes that the case. There is one point that I will refer to, and that is, the question of giving a different position in the service to masters from their present one, which is a question which has been very much mixed up with all their requirements. I feel very strongly on that point, that if you were to alter the position of masters, however much, as individuals, they deserve a higher position from their merits, yet you would strike a very severe blow at the ordinary efficiency of the service. And, with regard to the best and most rising young officers, who look to the first lieutenants' position as the one through which alone they can hope to get on, I think if you were in any way to alter the position of the masters and give them rank above the lieutenants, you would do a serious injury to the service generally, and to the lieutenants in particular, and that what might appear to be justice in some respects to many masters would be a serious evil to the service.

1354. You think that in that case the lieutenants would have a right to feel aggrieved?—I think that not only would they feel aggrieved, but I fear that they would not take the interest that they otherwise would take in serving on for seniority in the ships. At the time that I was discussing this point very much with the masters and others, to one of the very best masters that I knew, I put this question:—"Do you think if masters were put in a higher position, as seniors to the first lieutenants, for instance, that you would get any good first lieutenant to take the position, or look to it as a desirable position?"—His answer was, "I am arguing as a master, and not as a lieutenant;" and when I said, "Then, will you argue for the good of the service only? Putting the good of both classes aside, what would you do?" He said, "I would do away with the masters altogether."

1355. You stated, did you not, that you would remove second masters from having charge of the holds?—Yes.

1356. Do you consider that warrant officers might not take charge of the holds and the lower deck?—When I say taking charge, I mean as long as there is a master and a second master in ships, I think you must retain a supervision of the holds, and so far have the charge of them; and that, when stowing the second master should attend and make a plan of it all, and so far attend to it; but what I alluded to especially was, his being down there in daily supervision, not so much of the holds as of them and the decks combined. I think that is what keeps him below. But in a scheme which I drew up for an altered system, I urged putting a warrant officer as a superior class of captain of the hold under the first lieutenant, or whoever was decided upon to superintend those duties, and to have also another warrant officer in large ships on the decks. I think that five warrant officers in a first-class frigate or a line-of-battle ship would not be more than you would fairly want, and would not give too many positions for the better class of seamen to rise to. There are many deserving men who are not perhaps quite qualified either for boatswains or gunners, and who yet might be very good men to give a higher position in assisting the executive officers in the duties of the ship.

1357. Are you aware whether it has been ever generally a custom to appoint superior warrant officers to our ships, and to give them charge of the decks below?—I know that during the war, for want of junior officers, they appointed to the large class ships many warrant officers; but I was not aware that any warrant officers had been serving since the war in any capacity but their own. There is one other point which I should like to mention, in connection with any scheme for doing away with the masters. It was one of the questions asked me at the time I refer to, and I drew up a scheme for it, which ought to be in this office, that is to say, for providing for the charge of stores, for, of course, that is a necessary thing if the masters are done away with; but I do not think that there is the slightest difficulty in that, because I think rigging and all the work under the carpenter and boatswain has been very much superintended by commanders and first lieutenants, who have really been the best officers for that work, and certainly do it well. I do not think that any men can be more competent to superintend the expenditure, under the captain, of the boatswain and carpenter's stores, than the executive officer who orders what shall be done in a ship. Then, with regard to the warrant officers, they are certainly, in education, a better class of men now than they were when they had the charge of stores some years ago. All the warrant officers would be competent to keep the expense book, under the direction of the first lieutenant or commander, and to make a fair expense book, and I think the work would be just as well done in that way as it is at present, while I think it would be very desirable that it should be the duty of the commander or the first lieutenant to superintend all the rigging part of the ship and the expenditure of stores, because I have known instances in which first lieutenants have thought that it was exclusively the master's work, and perhaps too much neglected the work aloft, and the rigging part of the ship. Then, with regard to the gunners' stores, there is no doubt that a gunnery officer, with the gunner, could attend to the expense of the gunners' stores better than the master can; and so with the gunnery lieutenant, the first lieutenant, and the warrant officers, the expenditure of the stores would be well taken care of. I also urged that the first lieutenant, the gunnery lieutenant, and the navigating lieutenant in every ship should have 2 *s.* a day more pay (for I think 1 *s.* a day to the first lieutenants of frigates hardly enough for the position they hold), and I would give, as an inducement, which it would be to some, to take those duties, 2 *s.* a day to all first lieutenants, no matter what the class of ship was, or at least down to small frigates, where there were three lieutenants, and to all navigating lieutenants, and to all gunnery lieutenants; that would be quite remuneration for the little extra work which they would have to do with the stores.

1358. You are of opinion, are you not, that every captain should be able to navigate his own ship, and should do so?—I think so, if it were possible; most decidedly.

1359. Do not the young captains and commanders now frequently do so?—I think decidedly more so than they used to do. I think the young officers coming forward now are, many of them, more inclined to do so; and I think you will find more young officers who feel themselves competent to take the duties now without masters, than you would have done a few years ago. When I urged it on the First Lord of the Admiralty, and when he made a little attempt at beginning this system, just to try it, he had been told that officers would not take the command of ships if they were to have them without a master, and without providing a navigating officer in lieu of the master; but the answer made by one captain of a line-of-battle ship, who had never been in a surveying vessel, but had been brought up in the regular line of the service was, "If one cannot do it, find one that will; you will find plenty of officers for every class of ship, and those the best ones, that will be willing to take the command of a ship without a master." But in this case the First Lord of the Admiralty thought that he would try it with a young officer. There was a vessel about to be commissioned, that would ordinarily have had a master or a second master; it was a small commander's command, with one lieutenant; and a young commander was sent for, and was asked if he had any objection to take the command of this vessel without any master or second master, with one lieutenant to help him in all the duties, and his answer was, "Not in the least, if I am not fit to navigate a ship I am not fit to command her." That vessel went to sea, and I believe served three years without an accident. I think that the many young officers and commanders now who are more ready and more able to navigate their vessels than formerly, has been the result of the experience which they have had during the Russian and Chinese wars, while in command of gunboats.

1360. Do you think that under the present system of masters, the young lieutenants and commanders are improving?—Only through that one fact of their having had experience in the gunboats without masters, and therefore naturally they have benefited by it; but if they go on with the system that provides them masters always to take the responsibility, by the time they get the command of line-of-battle ships many of them will know much less about it than they would under a different system.

1361. Do you not think that the majority of young officers who were offered a ship in the same manner as the one you have mentioned, would take command in the same way, feeling themselves competent?—Yes, I think they would; and I think they are just as competent as the young masters who begin for their first appointment, and therefore, if the responsibility was left on them, and they had no master, I believe they would become as competent as the masters become. It was on that ground that I rather advocated leaving more responsibility with the captain, and not providing another class. My original feeling was in favour of leaving it to the captain, believing that that would be the result, and that if it were, it would be most beneficial to the service. I believe that very recently a ship has been for a year and a half without a master; the first lieutenant has navigated her, and she came home through the Straits of Magellan.

1362. Could you propose any remedy for the incompetency of young masters, of which you have spoken, without abolishing the class?—I have mentioned what I consider the remedy, namely, for the second master and the master's assistant to be kept more on deck assisting the master than is the custom at present.

1363. The particular advantages which you consider the service would derive from abolishing the class of masters would be, that there would be a greater diffusion of knowledge amongst the upper class of executives, and that you would secure a class of navigating officers of superior ability, by culling them from a greater number?—These are part of the reasons; but I think that the great additional reason is, that you would not have two classes clashing in the higher ranks, and therefore there would be no chance of any jealousy or differences of opinion as to the positions of the two classes of officers, while you would have all the efficiency of the present system, and probably more, particularly in the advantage of the navigating class going to the commanders' and captains' list. You would settle the question for ever of the position of the masters, which I feel is a question which cannot be settled in any other way, because you cannot keep them in their present position without apparent injustice to a very valuable body of men, as to rank, and you cannot alter that rank without an injustice to the other executive officers; and that is the very strongest reason why I think the time is come that the class should be abolished.

1364. Do you consider that the competency of young officers to navigate their ships, which has been noticed lately, arises from their source of education

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education at the Naval College?—No, I think not. I think it arises from more of them having been put in positions where they find it necessary to learn the duty, and to do it. I should like to mention a remarkable instance which occurred once under my own command, showing how, when necessity arises, a young man who, perhaps otherwise, would never have given his attention to it, if he had always been supplied with some one to help him, showed extraordinary abilities in that line. I once had with me a young lieutenant of little experience, put into command of a small sailing brig, with no officer of any description under him, a boatswain's mate and a party of men being alone his crew. He was taken directly into some of the most intricate and dangerous river navigation and entrance of river navigation in the world. For a few days he felt so nervous and anxious at having this vessel in those intricate waters, that his own impression was, that a few days more would make his hair grow grey. In a week or a fortnight he was becoming an unusually good officer, to handle a vessel in an intricate navigation; he was sent alone down this navigation, which he had come up for several hundred miles, with the buoys and everything removed, in consequence of the war. He was then detained till he brought up the other vessels with him. He was again sent down 500 miles with wounded, and he was made to bring up two vessels of the greatest draught of water of the whole fleet, that were just loaded to what could pass difficult passages; he had no one to help him in piloting those two large sailing merchant vessels as well as his own brig, and he brought those two vessels up 500 miles, I believe, without touching the ground; and by that time he was a better pilot than many of the surveying officers that I have known after years of experience at the work. All that ability would probably never have been shown if he had had a second master in that vessel; if he had gone in the ordinary line of the service, and had been brought up with a master under him, and some one to attend to that work, he would never have felt his ability. These are the class of men whom I would pick out from the whole service, not only for the navigating class, but with a view to bringing as many of them forward to the head of the service as I could.

1365. Have you commanded other ships than surveying ships?—No, only surveying ships; but I have been serving in and handling ships of all sizes. I have been serving very much in and with large ships.

1366. Have your duties always been connected with pilotage and survey?—Yes, since I have been a commander.

1367. The promotion in the various grades of lieutenant, commander, and captain, is now very slow, and I believe is felt to be even detrimentally so. How would you propose to keep it even at its present slow pace, if you added to the present list of lieutenants by abolishing the masters?—I do not think that it is at all necessary to add to the present list of lieutenants; on the contrary, I would decrease the present list of the lieutenants, and increase what are called the sub-lieutenants, so as to have a smaller list of lieutenants to pass through in getting to the higher rank, but a longer time in the sub-lieutenants' rank.

1368. Unless you increased the facilities for reaching the higher grades of the service, would you not arrive at the same block by that system?—I cannot see the slightest fear of increasing the difficulties of rising, because at the most you would not require more lieutenants than at present, if you had a proper proportion of junior officers with them. A large ship in my young days had nearly as many mates as she had lieutenants; now a ship has lieutenants only, or at most one or two mates; therefore, with the present number of lieutenants, or even with one less in large ships, if you had an equal proportion of sub-lieutenants, serving from the ages of 20 to 24 before they were made lieutenants, you would have a better staff of officers than you have at present, and a smaller lieutenant list for them to pass through to get to the commanders rank. And as you can only get thorough efficiency in a list like ours by selecting the best officers for advancement, that would be desirable. On the other hand, there are many officers who serve long and well, though not first-rate officers, who would have little chance of getting to the higher ranks, and those ought to be provided for, as they are in the army and marines, by a good system of retirement. I do not think that the abolition of the masters will bear in the slightest degree on the question of promotion to the higher ranks of the service, further than that it will give you a more efficient class in those higher ranks. Perhaps I may be allowed to add, that I submitted my proposals for doing away with masters, and re-organizing the different ranks of executive officers, to several of the best officers in England at the time; and from all received opinions, more or less strong, on the impossibility of altering the rank of masters without injustice to other officers, and in favour of doing away with the master class, but of substituting for it a navigating class selected from the whole of the junior officers for their special fitness for the duty.

The following extracts from letters received I should like to hand in:—

From Captain G. W. Preedy.—"I am of opinion that if masters took the command under any circumstances over lieutenants, it would prove *most injurious* to the *service*. What ought to be done without loss of time is, to place the masters on the several lists according to their seniority and merit."

From Rear-Admiral J. Robinson.—"Prospectively masters should be abolished, but carefully, and not till after, by three or four years assiduous labour and inspection, lieutenants, &c. have been made to keep ships' reckonings and navigate ships, and even pass a certain pilots' examination for the Channel."

From Captain A. Mellersh.—"The masters present the greatest difficulty; but I entirely agree with you in the whole of your remarks concerning them."

From Captain A. Cochrane.—"Your exposition of your views concerning the doing away with masters was so clear, and of such advantage to the service, that whatever views one may have previously entertained, there can be no doubt that all others, as well as my humble self, must ere long become converts."

From Rear-Admiral J. Tucker.—"If *you keep* masters in the service in point *of rank*, they must remain *as they are*. Give them more pay, if you like; but higher rank in the *ship is impossible*."

From Captain J. H. Cockburn.—"As to the doing away with the present class of masters, rather

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rather than they should always be asking for more, and remain a discontented set of officers, I would do away with them, and the plan you propose is a very good one. Still I am so convinced of the necessity of a double navigation, and the great advantage of having one man constantly at the work, that I would make the scientific class you propose do the duty.

"I feel sure there are many excellent officers who have not the particular ability or *correctness* which is so necessary in navigating a large ship."

From Captain J. Denman.—"Before I look at your paper, I write the opinion I formed after reading the masters' pamphlet.

"First. The agitation begun, there never will be again harmony, but a perpetual struggle and endless jealousy.

"Therefore, and in connection with other important objects, I propose there shall be a special corps, to be called surveyors or engineers, or anything you please.

"I would invite the ablest officers to study astronomy, pilotage, mathematics, &c., in order to qualify for the duties.

"I would have no master class, but a lieutenant should do the duty, he having passed the examinations now passed by masters, and much more.

"The lieutenants so qualified should have certain advantages in point of pay.

"With all fleets there should be a 'Lightning,' as in the Baltic, commanded and officered by those who are specially qualified. These officers should be eligible for ordinary appointments, as when made commanders there would be few engineer or surveying appointments open to them.

"By such means I would abolish the master class. You know we may train up, *exceptionally*, officers from the general lists of admirable qualifications. I do not pretend to details, but only send generals.

"I take it for granted the rank of master must be abolished. What they ask cannot be granted; and I do not think they will ever be contented now the agitation has commenced. I do not deny they have cause of complaint, but the remedy they want would be very unjust to others.

"I would hold out considerable premiums to officers to qualify as pilots and navigators. Every ship should have a specially qualified lieutenant to perform the duties.

"It would not follow that all officers who qualified would receive appointments, but the advantages of extra pay would cause many to qualify.

"When promoted they would go on the general list of commanders, and thus a great deal of necessary knowledge would be diffused, and people would be ashamed of their present ignorance.

"Every squadron should have a surveying ship attached. In peace she would be adding to her hydrographic knowledge; in war she would be the pioneer of the fleet.

"A flag-ship should bear a qualified commander, who would do the same duty as a navigating lieutenant in other ships."

[The Witness withdrew.

[Adjourned to Thursday, at Twelve o'clock.

Thursday, 27*th February* 1862.

PRESENT:

Rear-Admiral the Hon. C. G. J. B. Elliot, C.B.
Captain Washington, F.R.S.
Captain George Goldsmith, C.B.
Captain Charles Henry May.
Commander Cornelius T. A. Noddall.

Rear-Admiral the Hon. CHARLES G. J. B. ELLIOT, C.B., in the Chair.

Lieutenant ALFRED CHATFIELD, R.N.; Examined.

Lieut. *A. Chatfield*, R.N.

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1369. WHAT is your seniority as lieutenant, and how many years have you served in the Royal Navy?—My seniority is of 6th of March 1854. I shall have been lieutenant eight years the 6th of next month.

1370. How long have you been in the Navy? —Sixteen years in March.

1371. In what ships and for what periods have you served as lieutenant and first lieutenant?—The "Gladiator" was my first ship as lieutenant, in the Baltic and Black Sea. I joined her in 1854. I served in her till the end of 1857, and then I was appointed as first lieutenant to the "Alacrity." She went on shore when we were escorting the Princess Royal over to Antwerp, and was paid off. Then I was appointed to a gun-boat, in which I served on the east coast of England. She was tender to the "Cornwallis," Captain Randolph.

1372. How long have you served as first lieutenant?—As first lieutenant and lieutenant-commander, since 1857. I went from the gun-boat as first lieutenant to the "Cornwallis," and I was one year and nine months in the "Cornwallis," when I went to the Mediterranean, and was appointed to the "Saint Jean d'Acre."

1373. Are you aware that discontent exists among the masters in the Royal Navy, caused by the feeling that they do not hold sufficient relative rank with other officers?—Yes; I have heard several complaints made by the masters.

1374. Do you think that they have reasonable grounds for discontent on this point, as regards the rank of staff surgeons, paymasters, and engineers of 15 years' standing?—That would depend upon the standing of the masters at that time; it would depend whether they were just promoted, or whether they had been of long standing.

1375. Do you think that masters of 15 years' standing have any right to complain on that score?—Their rank of late has been increased, and they rank now with lieutenants of under eight years' standing, which places them much

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more on an equality with paymasters and surgeons.

1376. Do you think that the senior masters have reasonable grounds for discontent on this point, as regards the rank of staff surgeons, paymasters, and engineers of 15 years' seniority?—Yes, I do, because the paymasters' and staff surgeons' rank has been increased in a greater proportion than that of the masters, and they rank above the masters now, whereas formerly they did not.

1377. If masters of 15 years' seniority were allowed to rank next above staff surgeons, they would be restored to their former relative position as regards the civilian officers, would they not?—Yes, certainly. Their rank would be the same; but the uniform, I think, is the point upon which they feel themselves aggrieved.

1378. Such a step would place the lieutenants of 15 years' seniority at a disadvantage in comparison with the masters. Do you think that the class to which you belong would look upon this as a grievance, notwithstanding the fact that lieutenants have the highest ranks of the service open to them?—Yes; because the master in that case would take precedence of the lieutenant on board ship.

1379. My question was rather with regard to relative rank, independent of the command. How would it be in that point of view?—I am quite sure that lieutenants would not like the masters being placed over their heads.

1380. The lieutenants of 15 years' standing might feel themselves aggrieved, might they not?—Certainly they would.

1381. Do you think that the senior lieutenants generally would feel aggrieved if the masters of 15 years' standing were raised to their rank?—I do not think that lieutenants on board ship would feel themselves at all aggrieved by the masters having extra rank given to them, if they did not take command in actual service.

1382. Are you aware that by Article 2, page 27, of the Queen's Regulations, the masters are subject to the authority of the lieutenants, notwithstanding the fact that the lieutenant and master rank with each other according to the dates of their respective commissions?—Yes, I am.

1383. This seeming anomaly is in order to prevent any clashing between the officer charged with the executive duties, and the officer charged with the navigation duties, is it not?—Yes.

1384. In the event of superior rank being given to the masters, do you see any reason why an extension of the Article above referred to should not equally well prevent any clashing between the lieutenants and the masters?—Certainly not.

1385. Do you think that there is a soreness amongst the masters at present with regard to their only taking command after the lieutenants?—I do not think that the masters wish to take the executive command on board ship. Several of them, to whom I have spoken on the subject, have assured me that they certainly did not wish it.

1386. You think that their rank might be raised, but still that in all matters of command and all details relating to the duties of the fleet, and the discipline and the interior economy of the ship, they should be held to be subject to the authority of the lieutenants?—I do not see that it would make any difference whatever, because the masters now over eight years' standing have precedence of the lieutenants, and if you give them more precedence still, or give them any rank you please, you could not alter their position in the slightest degree, if Article 2, p. 27, Queen's Regulations, is kept in force.

1387. Do you not think that the senior masters feel aggrieved in being so placed subordinate to the lieutenants?—I have not been on board ship on active service, and I have had very little opportunity of speaking to the masters on the subject since this order came out. I should certainly think that they would be aggrieved.

1388. You have lately served in a ship with a master of considerable standing, have you not?—Yes.

1389. How was he placed with regard to lieutenants?—By being of more than eight years' standing he was placed senior to the lieutenants on board by the order that came out, which we received when we arrived at Plymouth, but that was only for a few days while we were being paid off. When I first joined the ship, he ranked with, but after, the lieutenants. By the Admiralty circular that we received at Plymouth he was placed above the lieutenants on board, by having the rank of commander given to him.

1390. Did he consider that that gave him command as well as rank?—Yes.

1391. Did he exchange his uniform in consequence?—Yes; he put on the two stripes immediately. I was acting commander at the time, and of course he had not precedence over me; but he gave it to be understood that he took precedence of all the lieutenants that were not above eight years' standing.

1392. How many years' service had he?—Fourteen years. He was made master in July 1848.

1393. In that case did the lieutenants feel in any way aggrieved at the master's assuming superior rank?—They felt very much aggrieved at the master's having superior rank given to him, and being placed over their heads, because then we had not seen Article 2 (the new Queen's Regulations had not come out), which gives to all lieutenants precedence on board ship over the masters, notwithstanding their superior rank.

1394. You think that if the senior masters were given a superior rank the lieutenants would feel aggrieved if they also took command as well as rank?—Certainly I do.

1395. Do you see any objection to their being placed on an equality with civilians, so far as their precedence goes?—No.

1396. But you do object to their taking command over the lieutenants?—Yes.

1397. Do you think that that is the general feeling of the service?—From what I know of the service, I certainly do.

1398. Supposing the senior masters were always subordinate to the commanding officer, although not subordinate to the junior lieutenants, do you think that would answer?—No, because in the event of the first lieutenant going on shore, or being superseded, the master might become senior to the second lieutenant, and take the command out of his hands entirely.

1399. But my question supposes that the second lieutenant would still be the commanding officer?—Then the master would have no further benefit than he has at present.

1400. That is to say, in the actual command of the ship the senior lieutenant on board should always take precedence?—I do not think he would like the master's taking precedence of him in any matter whatever connected with the military discipline of the ship or the internal economy.

1401. Do you think that it would be beneficial to Her Majesty's naval service in general that the class of master, second master, and master assistants should be done away with, as a separate branch of the service, and their duties transferred to the officers of the regular executive class, who should pass certain examinations, and have advantages as regards promotion held out to them?—I think it would be a very good thing for the service if the class were done away with entirely.

1402. Will you give the Committee your reasons for that opinion?—I think it would be an advantage to the lieutenants to have experience in navigation and in the pilotage of ships, which they have not at present, the master doing that duty; and would settle all disputes as to precedence between the masters and the lieutenants.

1403. Do you think that the lieutenants would readily come forward for those duties?—I have no doubt that they would do so.

1404. Do you think that there is any wish on the part of the lieutenants that they should perform those duties?—I have often heard the question mooted on board ship of doing away with the masters' line, and I have generally heard lieutenants speak of it with great approbation. I think that the class of masters is not a popular class in the navy.

1405. Do you think that the lieutenants in general take more interest in navigation and pay more attention to it than they used to do formerly?—Certainly I do; and I think they are also much better navigators than they used to be.

1406. Have you been in the habit of seeing them taking sights, and actually working their reckoning carefully?—I have, constantly.

1407. I mean in such a way as actually to keep a check upon the master or other officer?—I do not know whether it was done for the purpose of keeping a check upon the master, but it has been done in such a way as might be used for that purpose, certainly.

1408. Was it quite a matter of course in your last ship that the lieutenant should keep a careful reckoning?—One lieutenant had to send his reckoning in to the captain every day. The lieutenants usually came up at 12 o'clock to take the sun, but they did not all take sights in the morning. One lieutenant always took sights in the morning.

1409. Do you think that the lieutenant who took sights in the morning really did it in a trustworthy manner, or in the way that midshipmen often take their sights at noon?—One or two I know took them always very carefully; but I cannot say for certain that all took them carefully.

1410. You state, do you not, that you think that lieutenants would readily come forward to perform the masters' duties?—They would do so if the advantages which you mentioned were held out to them.

1411. Do you think that the best of the lieutenants would volunteer for that duty, or that they would look to become first lieutenants or gunnery lieutenants, or to fill other positions?—I think the class of men who would be likely to come forward to do the duty of master would also be likely to wish to do the duty of a first lieutenant; but I should suggest that the junior lieutenant should take the duty.

1412. It is the general opinion that the officer who performs the duties of navigation should have considerable experience in seamanship as well as navigation. Do not you think that it would be better to entrust the navigation to some one of the lieutenants other than the junior?—No; the master has generally very little to do with the working of the ship as regards seamanship; it merely rests in the captain's hands; that is to say, in carrying on the duties of the ship he merely works the reckoning and writes the log. He has some other duties, perhaps, but I think that a lieutenant is quite as likely to get as much experience as a master, and in seamanship more so, because as second master and masters' assistant they have very rarely anything to do with the working of the ship; they are generally down in the holds; and a midshipman or a mate is much more likely to learn his duty as a seaman than a second master.

1413. That is to say, if he had time to gain experience, he would probably do so fully as well as the master does at present, if it were his duty?—Yes.

1414. In the event of doing away with the class of master, second master, and masters' assistants, how would you dispose of those now in the service, having special regard to the claims of the many old and valuable officers now on the masters' list?—That is a subject which requires great consideration, and I have not formed an opinion upon it.

1415. What has been the nature of the duties assigned to the second masters and masters' assistants on board the ships in which you have served?—They generally have had the charge of the holds, the lower deck, and the orlops.

1416. Are masters' assistants more on deck now than formerly?—In small ships they are, but in the large ships I think they are constantly down below.

1417. Do you recollect where the masters' assistants performed their duty in your last ship?—One kept watch part of the time, and the remainder of the time he was in charge of the lower deck; the other one assisted in the duties of the lower deck and orlops.

1418. Do you think that in general the cadets and midshipmen have more opportunities for learning seamanship than the masters' assistants on board ship?—Yes.

1419. Are you aware that an order has been issued lately for masters' assistants to do duty on the upper deck, and to keep watch?—Yes.

1420. Was not that acted upon in your last ship?—The master's assistant kept watch while the second master had charge of the hold; but the second master not being found fit for that duty, he was sent on deck, and the master's assistant was sent below to take his place, there being no one else to do the duty.

1421. Did the second masters of the ships in which you have served come up to take sights for the chronometer in the morning, and for the latitude at noon?—Yes, as a rule. I cannot say that they always came up, but as a rule certainly the masters' assistants and the second masters both came up to take sights, and at noon.

1422. We have had it in evidence that the second master always attended to the grog tub at seven bells. Is that so?—In the ships that I have usually served in, the spirits have been measured off at six bells, and the grog not served out till one bell, so that the second master had time at seven bells to go and take sights.

1423. Have you seen it to be the custom for the

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the second masters to send their work books in to the captain?—Yes.

1424. Do you consider that a young master has a much greater knowledge of seamanship and navigation than a young lieutenant?—No, certainly not.

1425. Then at the time of attaining that rank they start pretty fair in the service with respect to seamanship and navigation, do they not?—I should say that the lieutenant had the advantage in seamanship, having constantly kept watch as a mate; but the second masters are generally kept longer than the mates are before they are promoted to their relative rank of master and lieutenant. A second master is sometimes five or six years, in which case he would, of course, gain more experience than a mate would in two years. If they were both the same length of time in the service when they were promoted, I should say that the lieutenant had the advantage of the second master in seamanship; but if the second master has been five or six years second master, as they constantly are, it is natural to conclude that he would have more experience than a young lieutenant who might be promoted at 19; that is to say, with the same number of years' service, the lieutenant would have more experience in seamanship than the master.

1426. On the general question, do you consider that setting apart a class, such as masters, to attend to the navigation and pilotage of the ship, has a tendency to make the other officers indifferent to the subject?—I think it has a tendency that way. The lieutenants do not keep up their navigation, as they should, after they become lieutenants.

1427. If a lieutenant accepted the post of sailing officer, and were kept in continuous service for six years, should you consider that he would be quite equal to any of the masters in the service of the same standing, or is there any reason why he should not be?—None whatever.

1428. Do you know anything about the standing of the masters in the large frigates at present?—I do not suppose that many of them are of more than six or seven years' standing.

1429. Should you consider that a master who had been six years continuously at sea as a master in an active employment, would be qualified to take charge of a line-of-battle ship?—I see no reason why he should not be.

1430. Do you consider that a lieutenant, having gone through his six or nine years' service in smaller ships, would be qualified to take charge as master of a line-of-battle ship?—Perfectly.

1431. Do you think it would interfere at all with his qualifications as an executive officer, or as the captain of a ship?—No, I do not.

1432. With regard to the gunnery officers, is it found that their knowledge of gunnery interferes at all with their making as good commanders or captains as the others?—I do not think that a gunnery lieutenant would make as good a first lieutenant as a man who has been constantly doing duty as a first lieutenant, of course.

1433. But would he make an equally good commander or captain of his own ship?—I see no reason why he should not.

1434. In fact, a first lieutenant and commander of a line-of-battle ship, or first lieutenant of a frigate, has special duties, has he not?—Yes.

1435. And a gunnery officer has special duties, has he not?—Yes.

1436. Might not a special officer be selected who should have a special duty as navigating officer?—Yes.

1437. Need either the one or the other of those special duties interfere with the qualifications of a commander in a separate command, or of a captain of a ship?—No, not at all.

1438. Do you think that it would answer to have a navigating commander, in addition to an ordinary commander, for a line-of-battle ship, as has been suggested?—I do not see any reason why it should not. There would be no more room taken up on board ship, because he might take the master's cabin in a line-of-battle ship; and I see no reason whatever why there cannot be two commanders; that is to say, provided that the sailing commander was not the senior of the other commander of the ship; there might be a difficulty there. I think that the navigating lieutenant or commander ought to take his rank in the ship according to his seniority.

1439. Do you think that he should carry on the ordinary duties of the ship after he became the senior on board?—Yes.

1440. Do you think it desirable that the second masters should be removed from the orlops and lower deck, and be kept on the quarter deck?—I do not see who is to take their place.

1441. Leaving that out of the question, do you think it desirable, for the good of the service, that they should be removed from the lower deck?—Certainly I do.

1442. Do you not think that warrant officers might be placed to do their duty as captains of the hold, and in charge of the lower deck?—Equally well.

1443. In fact, is it not the case in some ships in the service, that additional warrant officers have been appointed for that purpose?—Yes.

1444. Have those warrant officers carried on the duties satisfactorily?—Very much so.

1445. What are the inducements that would make a lieutenant charge himself with the duties and responsibilities now placed upon the masters?—The same privileges that a first lieutenant or a gunnery officer is supposed to have at present.

1446. What special privileges do you refer to?—There is a small increase of pay, and a better chance of promotion. A better chance of promotion would be the great inducement.

1447. What increase of pay do you think would be a sufficient inducement, besides that of promotion?—I should think that the pay ought to be according to the size of the ship.

1448. What is the extreme limit of pay that you would give, in addition to the pay that a lieutenant now receives?—I think it ought not to be less than what the master has at present.

1449. That would give the sailing officer a considerable advantage over both the gunnery lieutenant and the senior lieutenant, would it not?—In a small ship it would not, and in a large frigate or line-of-battle ship you have a navigating commander in the ship.

1450. Still the senior lieutenant of a line-of-battle ship has an extra shilling now, has he not?—Yes.

1451. And so has the gunnery lieutenant, has he not?—Yes; but you would then have a sailing commander.

1452. But in ships without a commander, would he not have a considerable advantage?—He would have an advantage in pay, if you give extra pay as well as the hope of promotion; but I am quite sure

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sure the lieutenants would very much prefer quicker promotion to an increase of pay.

1453. You think that the lieutenants would waive the extra pay?—Yes; if the promotion after a certain number of years were certain.

1454. And what limit would you put to the number of years?—I think that the promotion should be after six or seven years.

1455. How would the senior lieutenant and the gunnery lieutenant be reconciled to that, as they have very responsible duties to perform also?—I think that the senior lieutenant and the gunnery lieutenant should have the same hopes of promotion held out to them as the navigating lieutenant.

1456. Do you not think that the responsibility attached to the navigating lieutenant would be considerably more than either that of either the gunnery lieutenant or the senior lieutenant?—I do not think it would be more than that of the senior lieutenant, because he takes command of the ship the moment the captain leaves.

1457. But the responsibility of navigating and piloting the ship is surely greater than the usual responsibility of any lieutenant in the ship, is it not?—In pilotage waters it is usual to have pilots, and at sea the responsibility rests equally with the captain and with the master in navigating the ship, the responsibility of the captain being the greater, in fact.

1458. Do you consider it a simple matter to navigate a ship from port to port?—That entirely depends upon what port the ship is going to. To a person who knows navigation it is very simple indeed in the open ocean.

1459. Then in what branch of knowledge do you consider that the masters of the present day are superior to the lieutenants of the present day?—In their knowledge of pilotage and experience in navigation; they are obliged to know the pilotage of the Channel.

1460. But do you not see frequently ships taken into ports just by the charts, where none of the officers have ever been before?—I have seen that in China, and where there are no pilots.

1461. Have you not frequently taken a vessel into a port which you have never seen before, just by mere knowledge of the charts?—Yes; I have taken a gun-boat into almost every harbour along the east coast of England, but that is not the same as a large ship.

1462. If you were in command at the present moment, would you scruple to go into a harbour by the charts merely?—Certainly not, if there were no pilot in her. I would not risk getting my ship on shore if there was a pilot ready, because I should not be justified in doing so.

1463. Do you consider that the masters should look upon their present advantages of pay and half pay as having been given to them as a set-off against their want of promotion?—The masters were aware, when they entered the service, that they would probably not get any promotion above the rank of master, and I therefore consider that their present pay and rank are quite equal to what they should expect.

1464. Do you consider that the want of relative rank, as compared with the civilian branches of the navy, and the want of increased pensions to their widows, are the principal existing grievances that masters have to complain of?—Yes; those are certainly the principal grievances.

1465. Have you ever heard it expressed that the title of master was a grievance?—No, I have not; I have not heard them complain of the word.

1466. In the event of the abolition of the class of masters, there would be an increase in the present number of lieutenants; the promotions in that class are now considered so slow as to be detrimental to the best interests of the service; how would you, therefore, according to the present regulations of the service, propose that with such an increase you could provide for a continuance of even the present rate of advancement?—If you increase the number of lieutenants by adding navigating lieutenants, you would also have to increase the number of commanders by adding navigating commanders.

1467. Do you think that in such a case there might be a navigating or staff commander in line-of-battle and flag ships, to perform the navigating duty?—I think I have answered that question before. You must have either navigating commanders, or navigating lieutenants; there must be navigating officers.

1468. Are you aware that masters and mates of merchant ships can become qualified for occupying at once the situation of second master and master in Her Majesty's Navy?—Yes; by passing a certain examination.

1469. Do you consider such an introduction from that service to recruit the masters' line desirable?—No.

1470. Do you think that the service offers sufficient advantage for officers in the mercantile marine to join the Royal Navy in the masters' line?—I think the class of officers that generally enter from the merchant service are not a desirable class of officers to have in the navy.

1471. With regard to the Naval Reserve, would it not be rather a hardship upon the masters to find mates and captains from the merchant ships brought into the service, and put on the list in a rank superior to themselves?—I think that as the officers of the Naval Reserve come in merely as a temporary measure, it would not be a hardship upon the masters, but if it were for a permanency I think it would be a hardship.

1472. Do you consider a continuous sea service essential to the attainment of sound professional knowledge, as well as expertness and confidence in the handling of ships in difficult positions?—Certainly.

1473-4. Is there anything further that you could suggest to the Committee on the subject of the present inquiry?—I do not think I can add anything more to what I have already said.

[The Witness withdrew.

Lieutenant John B. Butler; R.N., Examined.

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1475. What is your seniority as lieutenant, and how many years have you served in the Royal Navy?—My standing is June 1855, as lieutenant; I entered the service in 1847.

1476. In what ships have you served as lieutenant and first lieutenant?—I served in the "Indefatigable" as junior lieutenant, and in the "Gorgon" and the "Brunswick," and latterly in the "Chesapeke," as first lieutenant and acting commander, in Admiral Hope's flag ship.

1477. Are you aware that discontent exists among the masters in the Royal Navy, caused by the

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feeling that they do not hold sufficient relative rank with other officers?—I have heard masters make complaints that they do not hold sufficiently high rank, more particularly with regard to surgeons and paymasters and the chief engineers. Their causes of complaint I believe to be with regard to the relative rank with the army; and also the widows' pensions is one of their grievances; they complain too of their half-pay in comparison with those officers.

1478. Do you think that they have reasonable ground for discontent on this point, as regards the rank of staff surgeons and the paymasters and engineers of 15 years' seniority?—I think they have. I see, on referring to the Navy List, that when a master gets to the highest point of his profession as master attendant, or master of the fleet, comparing his pay with that of paymaster of the first class, deputy inspector, and inspector of machinery, on full pay, he has 318 *l.*, while those officers have 600 *l.*, 511 *l.*, and 365 *l.* And on going lower down the list of those officers I find that masters after 10 years' service have 209 *l.* 17 *s.* 6 *d.*, while the paymasters, surgeons, and chief engineers, get 349 *l.*, 273 *l.*, and 237 *l.* Then with regard to the half pay list, a master after 25 years' service is as good as anybody else, with the exception of the deputy inspector, who gets 410 *l.*; but with regard to the chief engineer on the half pay list, he is upon the same footing as the masters. The paymaster on the retired list gets 155 *l.* only; so that in that case, the masters' pay is superior to the paymasters. As to rank, a master of the fleet ranks with the lieutenant colonel, but junior to him. The inspector general of hospitals under three years' ranks with a major general. Then a master after eight years ranks only with a major, and if he serve ever so many years after, he only ranks with a major; whereas the staff surgeon, the paymaster, of 15 years, and the chief engineer, after 15 years' standing, all rank with a lieutenant-colonel; but a master never gets higher as regards military rank than a major. And, lower still, the surgeon, paymaster, and chief engineer of eight years' standing rank with majors in the army, but the master of eight years' standing only ranks with captain. Therefore I think they have a grievance in that respect.

1479. If masters of 15 years' seniority were allowed to rank next above staff surgeons, they would be restored to their former relative position as regards the civilian officers, would they not?—Yes.

1480. But such a step would place the lieutenants of 15 years' seniority at a disadvantage in comparison with the masters. Do you think that the class to which you belong would look upon this as a grievance, notwithstanding the fact that the lieutenants have the highest ranks in the service open to them?—If a master after 15 years were raised to rank with a lieutenant-colonel, it would be only fair that a lieutenant should be raised as well; but one's hopes as a lieutenant of 15 years' standing are, that he may be made a commander, and that would put it on one side; but if the master is raised after 15 years to the rank of lieutenant-colonel, I think the lieutenant should be raised also.

1481. The lieutenant hopes to rise to the higher ranks by time, does he not?—Yes.

1482. Do you think that the lieutenants would look upon it as a grievance if the masters were so raised in rank, and they were not?—I do not.

1483. You think that the lieutenants would not think it a grievance if the masters were placed to rank with lieutenant-colonels after 15 years', and with majors after eight years' service?—No; a lieutenant does already rank with a major after eight years' service, and I do not see that there is any cause of complaint with regard to lieutenants, if after 15 years they are allowed to rank with lieutenant-colonels, the same as masters.

1484. Supposing the lieutenants not to be raised above their present rank, do you think that the elevation of masters of 15 years' service would be felt by the lieutenants as a grievance?—Certainly it would.

1485. Are you aware that by Article 2, page 27, of the Queen's Regulations, masters are subject to the authority of lieutenants, notwithstanding the fact that lieutenants and masters rank with each other, according to the dates of their respective commissions?—I am aware that the lieutenants always do take precedence of the master on board ship.

1486. The seeming anomaly is in order to prevent any clashing between the officer charged with the executive duties, and the officer charged with the navigating duties, is it not?—Yes.

1487. In the event of superior rank being given to the masters, do you see any reason why an extension of the Article above referred to should not equally well prevent any clashing between the lieutenants and masters?—I do not see how that would interfere in the least. I do not see why they should clash; the lieutenant still holds the same position, although the master is raised to something above what he was before.

1488. Do you think that the senior masters feel as a grievance that they are subordinate in this manner to lieutenants?—I have known instances where masters have felt a young lieutenant being placed over them in command of some little dockyard party, or something of that sort, but I never heard it mooted as a grievance.

1489. It is a thing which you have heard noticed by them, is it not?—Yes; but not specially as a grievance.

1490. In the event of their being raised in rank still higher than they are at present, do you think that that is a thing that would be likely to be noticed still more by them, if they are still subordinate to lieutenants?—No, I do not think they would. I think if the masters had some little points (one might almost say of right) ceded to them, they would be content with the position given to them, of placing them with lieutenants according to the dates of seniority. I think myself that any cause of complaint that the masters have at present is affected by the circumstance of their inferiority in some respects as regards pay and rank to the surgeon, the paymaster, and the chief engineer.

1491. Do you look upon it as necessary or desirable that they should be retained as subordinate in those respects to the lieutenants?—Certainly; I think that for a master to take his seniority and command in a ship, would not be advisable, because they are a class of officers who have not been brought up, and, of course, have not studied themselves the duties of commanding officer in a ship; and in the event of a senior lieutenant being sick or absent, the master, or the next senior officer of the ship, will take the command, Lieut. *J. B. Butler*, R. N.

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command, and I consider that the service would not be carried out as well as it would be by the next senior lieutenant.

1492. You think that at all events the commanding officer should be superior to the master? —I consider that the lieutenant should always be the commanding officer, though a junior, before the master, and that the master should retain his own duties, subordinate to the lieutenant, whatever his seniority may be.

1493. Have you ever heard that the masters are discontented with, or dislike their designation of masters?—I never have heard that.

1494. Do you think that it would be beneficial to Her Majesty's Naval Service in general, that the class of masters, second masters, and masters' assistants should be done away with as a separate branch of the service, and the duties transferred to the officers of the regular executive class, who should pass certain examinations, and have advantages as regards promotion held out to them? —I do not consider that it would be advisable, for these reasons, that we now have in the navy brought up from their youth a class of men who are competent practical navigators, knowing the soundings and headlands and pilotage generally, and I consider that it would be detrimental to the service for us to commence a new class of officers for the purpose of navigating ships, and I do not think that if any other officer in the ship were appointed to navigate the ship, the others would take any more interest in the navigation of the ship than they are compelled to do at present. I think it would be almost commencing a new navy. The master in a ship is invariably a man who has been from the time he entered the service made, under the master, to work the ship correctly, and in all practical parts of the duty, the ship going in and out of the harbour, the master's assistant and second master are placed by the captain on the bridge or on the poop to observe the headlands or observe the soundings, and take charts of places; and although this is in some measure enforced upon the young midshipman and mates, still I think that the masters make it more of a study, and have been brought up to the practical parts of navigation more than the lieutenants have. I do not mean to say that any lieutenant in the service is not capable of working his reckoning, and finding out the ship's place on the chart, or has not a knowledge of navigation in all its branches, but I think that the practical part of the work would not be so well carried out for many years as it is by the present class of masters. If you were to make them one executive class, as those men rise who become after a certain number of years capable of taking charge of a line-of-battle ship, they would be looking for their promotion, and they would become promoted, and disappear altogether. As to their own knowledge when they command their ships, they would be more competent perhaps than they were before, but at the same time their services as the pilot or navigating officer of the ship are entirely lost to the service.

1495. You think it a good thing, then, that a man from the time he joins the service should look to that particular branch, and instruct himself in it?—I do; I consider that as regards the masters' class now, in a great many ships I have served in, both as midshipman and lieutenant, I have known young masters, assistants and second masters'given charge of holds and tiers, and lower decks of ships; and, in fact, they are officers who are hardly to be seen on deck, except at the dinner hour and some other times. They are kept down there; and I consider that they have not the opportunities of improving themselves so much in that branch of the profession as they might have. But if it were insisted upon, from their entering the service, that they were to be employed upon no other duties than those of navigation and pilotage, that would ensure, on their arrival at the rank of masters, their being very much more competent than they are. In some cases at present, I know there are exceptions in the masters' class, of men being rather incompetent; and I have heard it alleged that this was partly because of their not being so well informed as they might be. If the second master is suddenly promoted from the lower deck, and put as master of a line-of-battle ship or a large frigate, which may happen any day, he ought to have experience in the pilotage and navigation of the ship; but I think he can have little or none before, if he has been kept down below for a number of years.

1496. You think that in that respect they might by working more under the master, and by being more particularly under his instructions, be better instructed than they are now?—Most certainly.

1497. If the class of masters were to be done away with, and lieutenants who passed certain examinations for pilotage, and so on, with certain advantages of promotion held out to them, were to have those duties entrusted to them, do you think lieutenants would be found to volunteer for that work?—If a lieutenant were to take that situation with the present existing duties of master, I do not think it would be a line of duty that the lieutenants would choose; but if it did not interfere with the opportunities which may present themselves of their being employed on other services which masters are not at present engaged in, I think that it would. I mean to say this, that if as masters are now invariably left in charge of a ship, when a landing party or any operations take place on shore, the navigating officer were left behind to look after the ship, I think that the lieutenant then would feel that he was not able to take part in such an operation, and would feel it hard; but as regards the general duties on board ship, I should think that a lieutenant would consider it a post of distinction to have the navigation duties of the ship entrusted to his hands.

1498. You look upon that as a very important trust?—A most important trust. Next to that of the captain and commanding officer, I consider that the next trust of importance on board is the master's.

1499. Do you look upon the masters whom you have met in the service as generally experienced men, and useful in their position?—Very much so. I never sailed with a master yet whom I have not always, as a young lieutenant, looked up to as a sort of an authority in the mess, as it were. Not only by myself, but by most of my messmates, he was always considered as the most efficient man to look after the safety of the ship.

1500. And he has been respected as well, has he not?—Yes, invariably so. It depends upon the man himself more than anything else whether he is respected in the mess or not. There may be instances in which a man may lose his self-respect; but, so far as regards their position in the ship, I always considered it a most revered one.

1501. Have

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1501. Have the masters you have met with been generally men in whom the captain appeared to place confidence?—During my experience as lieutenant, I have invariably, as officer of the watch, had orders by day from the captain to alter course or steer according to the master's directions. I, as officer of the watch, have received and obeyed those orders, and I should never think of altering course, except in case of an emergency, without consulting the master; and the captain's night order book is invariably the same, "steer so many miles in such a course, and let the master know when that distance has been run;" and the midshipman of the watch, as I know, called the master, and the master has either come on deck or sent up that the course is to be altered to another point, and the captain has been informed at daylight that the course had been altered at such a time by the master's directions. I have found that implicit trust was placed in the master; but those orders were of course arranged in consultation between the master and the captain before the captain went to bed, when he left his night orders. That is one of the situations of trust in which the master is invariably placed.

1502. Have you ever found the duties of master and officer of the watch to clash in any respect?—I do not remember anything of the sort. I have been keeping watch for a good many years, and I never had any difference with a master about anything connected with a ship. I have never known a master interfere with my duties, and I have never attempted to interfere with his. My orders are clearly from the captain; and if the master were to suggest to me that an alteration should be made in a sail or in the course of the ship, my duty would clearly be to go to the captain, and ask if such a thing should be done; except in a case of emergency, when I should take his advice, and use my own judgment in the matter; but I do not see how the two duties could clash at all if both performed their duty.

1503. Were you in China in the Chesapeake?—Yes.

1504. Were you much in company with gunboats?—Frequently.

1505. Do you look upon the gunboats as a good school for second masters in regard to pilotage?—I should say that it was the best school. I know it to be a fact that in China the second masters were invariably entrusted almost entirely with the navigation of the gunboats, checked of course by the commander's own work, but it almost speaks for itself. The gunboats used to go up and down the China seas, in and out harbours everywhere, and they were invariably conned by the second master. The duty of commanding officer devolved upon the officer in charge of the gunboats, but I do not think it interfered with the navigation of the ship in the least.

1506. Do you think that in general they were fit persons to take charge as masters of ships, after that practice?—Very young men were doing duty as masters of gunboats in China; but I should think, if you were to take the senior second masters, and promote them to masters, they would be certainly competent. I knew two or three second masters in China who were old officers and perfectly competent.

1507. Do you think that experience in that particular duty is desirable for the master of a large ship?—Yes, and it is the best school, I think, that a man could have. Of course there is a difference between navigating a gunboat and navigating a line-of-battle ship or a frigate; but that will be understood by an intelligent officer, and precautions would be taken to prevent accident; but no doubt a gunboat is the best school for learning the work.

1508. On the other hand, you have stated, have you not, that you think that in the large ships the position of a second master and masters' assistants might be improved as regards their education?—Most certainly, by adhering strictly to their performing the duties for which their class is required, instead of taking them to do duties which are certainly not of any use to them by way of instruction, you would bring up a very much better informed class of men by the time they arrive at master. I consider that when the ship is going in and out of the harbour, all the young officers of that branch should invariably be the master's staff, and should be by his side learning, asking questions, and being told matters concerning the navigation of the ship.

1509. Is there anything else that you can suggest to the Committee upon the subject of their inquiry?—I would suggest that in lieu of those officers being selected for the duties now performed by the second master and masters' assistants, an additional warrant officer or two should be appointed to each ship of a certain size to perform those duties. They are certainly duties that require a steady, confidential officer to carry out; but I should think, judging from the present class of warrant officers that we have in the service, they are fully capable of performing the duty.

1510. Have you seen warrant officers placed in charge of decks or holds?—In the "Chesapeake" we had for two years and a half a gunner in charge of her main deck, and no officer at all on the lower deck, except the master-at-arms, who had the entire control and supervision of the decks, and I never saw and never heard any difficulty arising therefrom. The second master had charge of the tiers and spirit rooms; but I think that the lower deck is a part of the ship where the supervision of an officer, except that of the commanding officer, should be entirely done away with. I think that an officer going among the lower deck messes, and looking into every hole and corner, is a very bad plan; it is not a proper line for an officer to pursue; and in the case of the "Chesapeake," for two years and a half our plan answered thoroughly, because I never heard a complaint of any sort.

1511. In that case the duties were satisfactorily conducted by a warrant officer?—They were most satisfactorily conducted by the master-at-arms himself, and there was no cause of complaint either from the commanding officer or from the men themselves. I think it is very undesirable that an officer should be suddenly rushing into petty disturbances on the lower deck, which he is obliged to take notice of if he is there; a thing of that sort is very much more easily avoided by a man in the position of the master-at-arms than it would be by an officer.

1512. Would not the difficulty in that case be, to get a sufficiently trustworthy petty officer or master-at-arms to look after the lower decks?—I think that owing to the new regulations that have been organized respecting the naval police, superior men are now entered, and that the difficulty in finding men would be overcome.

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1513. Have you been much in company with foreign men-of-war?—Yes, continually; with the French and Russian squadrons in China.

1514. Do you happen to know the French system with regard to navigating officers?—No, I should not like to say that I did, as I am not sufficiently well informed upon that point; but I believe it is done by the executive officers, and not by a particular class. I know that in the American navy the navigating duty is performed by the junior lieutenant.

1515. Do you happen to know what foreign officers say of their own system in comparison with ours?—I do not remember ever hearing them compared.

1516. It is found in practice, that having a special class of masters renders the other officers indifferent to the navigation of the ship?—I would allude to their lordships' circular referring to the officer of the watch, where he is ordered never to take charge of the deck until he has received from the officer that he relieves the exact position of the ship, and the bearings of the headlands; therefore his knowledge of the position of the ship, so far as that goes, is certain; but the other officers of the ship do not take so much interest in the navigation, because of the number of other duties that they have to perform.

1517. Do not you think that their having to attend to the duties of navigation would tend to make the lieutenants take more interest in the subject?—I do not consider that they would take any greater interest with a lieutenant navigating the ship than they do with a master; their duties would be the same, whoever navigated the ship.

1518. Is there any other observation that you would wish to make to the Committee?—I believe, if the condition of the masters in some respects were better, in regard to rank, &c., as compared with that of the pay-masters, the surgeons, and the engineers, that they would feel themselves acted fairly by, and consequently would be satisfied with the position which they hold. I do not think that the title of master is a thing which they bring forward as a grievance; but if it be, I do not see why we should not alter it, and call them whatever they please. I certainly consider that if those points were met, Her Majesty's service would be deriving a benefit from the knowledge of having our ships entrusted to men of tried and valuable experience. As I said before, if a navigating class is instituted, and the senior officers are obliged to navigate our ships, those men as they get their promotion are entirely lost to the service, so far as the experience they have gained goes, because they become commanders, and therefore they are no longer specially useful as navigators. Their experience might be useful to them individually, but not to the service generally. On the other hand, if you commenced to educate midshipmen for the position of navigating officers in a ship, you do not do away with the special class at all, you merely organize a new one, and you have to undergo all the difficulties arising from the new class of men.

1519. You do not look upon the gunnery officers as a class at present?—Certainly not; indeed every lieutenant is equal to a gunnery lieutenant in nine points out of ten; the gunnery lieutenant has a little more scientific knowledge about gunnery, but the practical part is carried out as well by the other lieutenants.

1520. Then why could it not be the same with regard to the navigating officers?—For this reason, that a ship goes to quarters every day, and the lieutenant has to drill his own quarters, and there is the rest of the lieutenant's duty in the ship; whereas, on the other hand, the navigating officer does not go on to quarters, or if he does go to quarters, if observations and so forth interfere, he retires, and takes them, and goes down and works his reckoning, which the other could not. The gunnery duty does not separate the gunnery officers from the others at all, because they do not keep their watch, and many other duties that lieutenants do for the purpose of instruction in gunnery, but the other lieutenants in the ship, for the examination they have to pass, and the experience that they get in gunnery, are practically as competent as the gunnery officers themselves.

1521. Do not you think that a lieutenant of some years' standing might become as useful a navigator as the master?—He might become so, certainly; but if you were suddenly to pitch upon a lieutenant in the service, unless he has had extraordinary advantages of putting his knowledge into practice, he would not be so.

1522. You look upon experience in that line, do you not, as most essential?—Yes.

[The Witness withdrew.

Lieutenant Arthur Wing, R.N., Examined.

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1523. What is your seniority as lieutenant, and how many years have you served in the Royal Navy?—My seniority as lieutenant is the 9th of November 1854. I have served about 17 years in the navy.

1524. In what ship and for what periods have you served as lieutenant and first lieutenant?—I served as lieutenant in the "Winchester" for two and a half years, and in the "Barracouta" for a short time, and in the "Hannibal" three years; the last eight months that I was in the "Hannibal" I was first lieutenant.

1525. Are you aware that discontent exists among the masters of the Royal Navy, caused by the feeling that they do not hold sufficient relative rank with other officers?—Yes.

1526. Do you think that they have reasonable ground for discontent on this point, as regards the rank of staff-surgeons and pay-masters, and engineers of 15 years' standing?—No, I do not; not as compared with those ranks of officers; but my experience leads me to believe that they have reason to be discontented with their position, contrasted with that of the other executives.

1527. In what respects?—They are always junior to a lieutenant of any standing. One may gather the discontent that prevails in the rank of master very greatly from every ship you serve in, because they attain a certain rank in the service beyond which they never rise. A junior lieutenant, who is a young man, may be left in command of a ship; and though he may not at all presume upon his rank, the masters know that it is the case, and it is a sore point with them; that is a great reason.

1528. Can you suggest any remedy for that, keeping the good of the service in view, as well as the good of the class?—I think that the service

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would benefit greatly in many respects by doing away with the class entirely, the arguments in favour of which are considerably more than for retaining them; of course it is a very wide question.

1529. You think, then, that for the good of the service it is desirable to do away with the class?—Decidedly so, in my opinion.

1530. In that case, who would perform the duties which are now performed by the master?—They should be performed first by the lieutenant in whom the captain could place the greatest confidence, and he should be changed periodically. I would have the lieutenants take it in turns to act as sailing lieutenant, which has been frequently proposed. I think that would be the most feasible plan.

1531. The masters whom you have described as being naturally sore from their position in regard to the young lieutenants have probably been men of experience, have they not?—Yes; and of long standing.

1532. If it were considered desirable to have a person of experience as navigating officer, how would you ensure that, under the change which you would propose?—By doing away with the master, you would want an officer, of course, to do his duty as navigator, who should be a lieutenant; it would be merely running it all into one line, and appointing one of the lieutenants to do the duty, so that all may have a chance of becoming perfectly acquainted with navigation, and to keep up that knowledge of a master's duty. I would periodically change them, at the captain's discretion. An officer should be appointed sailing-lieutenant for a year, always excepting the commanding officer, who would have gone through that course in other ships, and he would take to it again when he became captain. Of course it is a very well-known thing that there are no duties connected with the master's line which a lieutenant cannot do, and by abolishing the class of master, and transferring the duties to most lieutenants, you do away with all those points which are now felt so strongly. They are always complaining, and asking for an increase of pay to compensate for the want of those prospects that are held out to the other executive officers, in the shape of commands, and the posts of flag officers, and so on. That is the great thing. They say they get to the rank of master, which is subordinate to that of lieutenant, and there they remain, and the only thing that they have to compensate for that is the increase of their pay; and if something is not done they will always go on complaining.

1533. Would it not be just as well to give them rank in their own class?—I do not think that that would answer.

1534. You think it would be better to do away with them as a class than to give them rank in their present class?—I think it would be better to do away with them, but of course it would be some time before that could be done.

1535. The plan which you propose, of trusting the navigation alternately to the different lieutenants of the ship, would no doubt be beneficial to the individuals; but how would you propose to get as sailing officer, a man of such experience in that branch, which is generally looked upon as necessary for our larger ships?—That would be acquired by length of service. The knowledge of masters of long service is not because they are a more scientific class of men; it is merely from their constant practice. It is well known that candidates for masters by no means come out first, or anything like first, at College. The mates and midshipmen almost invariably precede them, and therefore it is only for want of opportunity they have not the competence of the masters in navigation, because they never have those duties to perform; and it is worthy of remark that the other duties of a master are as frequently performed by the other executive officers as by the master himself.

1536. Do you not look upon the navigation and pilotage of a large ship as requiring experience, and a considerable knowledge of seamanship?—Yes; but I think that the captain will be able to place the same amount of confidence in the other officers as in the master.

1537. You propose to give the lieutenants more experience in that branch by means of changing them periodically, do you not?—Yes. With regard to doing away with the class of masters, that would ensure in my opinion a better class of officers throughout the service, for I think that future captains would study the subject more, and thereby acquire a greater amount of knowledge and confidence themselves, consequently they would not look so much to others as they would to their own experience.

1538. You look now to educating the captains as navigators themselves, rather than to educate an assistant for them?—Quite so, because supposing you were to make them sailing lieutenants, each would be brought up year by year in different ships, and when they came to be post captain they would be masters themselves. I know that in some ships the captain will not be guided by his master at all.

1539. We should have a right to expect the lieutenant to have a more general knowledge of the lieutenant's ordinary duty than the gunnery lieutenant. Could we look upon him as having equal experience in navigation to that which the present masters have, seeing that he would not have his time devoted entirely to that one branch?—I think so, at least sufficiently to navigate any ship, that is to say, with the combined resources that the master now has of consulting the captain, and so on.

1540. Do you think that a man devoting his attention particularly to one subject would not learn his duties in that one particular branch better than one who devotes his time to a great many subjects?—No; I could not think that; but I do not think that it is a study which requires one man's whole attention. I think that a person may study two or three branches; in fact, he ought to be perfectly conversant with two or three branches of the profession. The masters apparently think that it does require a man's whole attention, the navigation is the chief, and, latterly, you may say the only duty which they have exclusively to perform, for they are relieved in their other duties; for instance, cable work, rigging, &c. Sometimes they have to keep the store accounts, but all this I think may be entirely done away with by the abolition of the rank and title of master.

1541. Do not you think that a man gains by experience in piloting and navigating vessels as well as in other things?—Certainly.

1542. Do you think that a man who devoted all his time or the greater part of it to navigation would not be at all better in that branch of knowledge than others who divided their attention

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tion between that and other subjects?—I think that a man who devotes his attention entirely to one branch, such as navigation, is more likely to have greater experience than a man who devotes his time to two or three; but it by no means follows that a man who is following three or four branches of the profession should not be able to do the duties as well, though he might lack some experience, certainly.

1543. You look upon it as desirable in most cases, I presume, that the first lieutenant of a large ship should have had some experience in the same line before?—Quite so.

1544. In the same way you would think it desirable, would you not, that a navigating officer should have some experience before he is entrusted with a large ship?—Yes; I think it is the schooling to make a man perfect as a captain. I think it stands to reason that a man who has had those duties to perform, and has navigated a ship, and had the responsibility attaching to it as lieutenant, would have perfect confidence in himself as a captain; but this is rather a wide question. It would be a great benefit to the country to do away with the masters' class. As I said before, you have to pay them in order to make their position equivalent to that of the other executives, and they receive double the pay of officers who are senior to them. No doubt they have served well for it; but at all events they are junior, and yet they get double the pay, and have a considerable number of allowances, store allowances, and several other things; whereas the country can get the same duties done at a very much lower rate, and done as well.

1545. Do you think the duties would be done as well?—Yes.

1546. Your opinion seems to be, judging from your evidence, that by your plan we should train up officers for captains with a better knowledge of navigation?—Quite so, in a few years.

1547. But can you see any way in which you can give the captain an assistant, with experience somewhat equal to that which the present masters possess in their particular branch?—No, I cannot, at present; for supposing the masters were all taken out of the ships at once, at a clear sweep, of course you could not forthwith, as the service is at present constituted, find persons with equal experience. No doubt they are a valuable class of officers; therefore you could not supply that amount of experience to the captains at present; but by the time they were done away with, and this new system brought into operation, you would have officers fully competent for the duties.

1548. You propose, do you not, to give every lieutenant an opportunity to become a navigating officer?—Certainly.

1549. How could you get the one man with considerable experience to assist the captain?—I think I proposed just now that the captain should take a sailing lieutenant to supply the place of the master, whose whole time should be devoted to it whilst he was doing the duty of navigation, &c., and that he should in the first instance choose the one in whom he could place the most confidence, and afterwards devolve the duty upon his staff of lieutenants, as experience evidenced their qualifications.

1550. Supposing the master's class were done away with, are you of opinion that the lieutenants and sub-lieutenants would readily come forward to undertake the duties of navigating officer, if certain advantages were held out to them in the way of pay and promotion, or do you think that the preference would still be for the regular line of service?—I am of opinion that they would readily come forward if the promotions and rewards held out to them were in some way equivalent to the risk attached to them in navigating a vessel, co-operating with the captain.

1551. Do you look upon the duties that would be thrown upon him as navigating officer as considerable?—Certainly. There are many duties belonging to the executive line which a master never takes share in at all; but a lieutenant would do so, even though he were a sailing lieutenant, from the mere fact of his being a lieutenant; keeping him conversant with the whole duties of his profession, such as a court-martial, for instance, which a master has nothing to do with. The masters have nothing to complain of so far as their pay goes; in that respect they are in a very good position.

1552. If it should be considered desirable to do away with the class of masters, second masters, and masters' assistants, how would you dispose of those now in the service, having special regard to their claims?—I have not given much attention to that subject; it is a wide question; but conning it hastily, it occurs to me that of the seniors some might be retired, and others gradually grafted on the commanders' list. The disposal of the junior masters and second masters would be more difficult. Of course, if you stop the admission of any more into the service, the masters' assistants could be easily disposed of; but then it might be said that that would be hard upon the sons of poor men, as shutting them out of the service.

1553. How do you mean to dispose of them? Do you mean that you would make midshipmen, lieutenants, and commanders of those now in the masters' line?—No, I would not do that. The masters' assistants might be made midshipmen; but it would be a most unpopular movement to place all the junior masters on the lieutenants list, or second masters on the sub-lieutenants, as individuals of one class or the other would unavoidably be placed disadvantageously.

1554. You stated, did you not, that you were just paid off from the "Hannibal"?—Yes.

1555. Where did the second master do his duty on board the "Hannibal"?—In the holds and orlops.

1556. Did he come on deck, when the ship was going into harbour, to assist the master?—Yes.

1557. Did he come on deck to take sights in the morning, with the chronometers, or to observe the latitude at noon?—Yes, always.

1558. Did he ever keep watch?—No.

1559. Do not the second masters and midshipmen pass the same examination at the Naval College in seamanship and navigation?—Yes.

1560. Therefore we may assume, may we not, that young masters and young lieutenants have an equal knowledge of navigation and seamanship, if they are promoted at the same time?—Yes.

1561. You stated, did you not, that there would be no difficulty in finding lieutenants to do the duty that a master does in navigating a ship?—Yes, I said so.

1562. Are you of opinion that a captain ought to be able to navigate his own ship?—Certainly.

1563. Can

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1563. Can there be any reasonable doubt upon the subject?—No.

1564. Therefore, would it not be desirable to give a captain every opportunity, while he is passing through the lower grades of the service, to attain a proper knowledge of navigation?—Quite so.

1565. Do you think that having a separate class of officers as masters, or as persons to whom the navigation is entirely confided, has a tendency to make the other officers indifferent to that branch of the profession?—Yes, I certainly think it has a tendency to make the other officers indifferent.

1566. As a general rule in the service, do the lieutenants pay much attention to the navigation of the ship?—No.

1567. You have stated, have you not, that it is your opinion that every officer in the ship should take his turn in navigating the ship if he is competent?—Yes.

1568. Would it not be desirable that, if officers volunteered as sailing officers, it should be required of them that they should pass an additional examination, and also that they should pass at the Trinity House, as masters now do?—I think that the Trinity House should be included in the examination. As to the examination at the College, that is not required to be more difficult, because it is supposed to be sufficient now to take you all round the world, or for all purposes of navigation.

1569. Would there be any hardship, supposing an officer had had an opportunity of acquiring the Channel pilotage, to expect him to pass the same examination at the Trinity House before he took charge of a ship that a master now does pass?—No, certainly not.

1570. Do you not consider that it would be quite reasonable and right that he should do so?—Quite so.

1571. If you were to propose to young lieutenants to volunteer to do the duties of sailing officers, do you think that volunteers would be found?—Undoubtedly.

1572. Do you know the standing of the masters who are now in the large frigates and some line-of-battle ships?—I do not; judging from those I know, I should say it was about 12 years.

1573. It happens to be six years. Would you consider that six years' continuous service as navigating officer would render a man competent to take charge of a line-of-battle ship as navigating officer?—Yes.

1574. You have stated, have you not, that you do not consider that the other duties of a master, such as the stowage of the holds and so on, are of much importance?—That is my opinion.

1575. Might not a warrant officer very well take charge of the hold and do the duties which the second master now does?—Yes.

1576. And also the main decks?—Yes.

1577. Have you ever been in a ship in which warrant officers have had the charge of the deck and the charge of the holds?—Not the charge of the holds, but the warrant officers have had the charge of the decks.

1578. If the masters' class were amalgamated with the lieutenants' and commanders' classes, should you, as a lieutenant, object to the number of masters that would have to be placed upon the lieutenants' list?—Yes; and I should suppose that in the majority of cases the lieutenants and commanders would naturally object to it. It would be so many more men over us retarding our progress in the service.

1579. You consider that it would be a bar to promotion, in some measure?—Yes.

1580. Then you would prefer their being placed upon separate lists, supposing the class to be done away with?—Yes.

1581. It is evident that something must be done with them, is it not?—Of course something must be done with them, if there is to be a change at once.

1582. When you say "change made at once," the present masters will continue to do their work as the navigating officers, most probably?—Yes, I suppose so.

1583. But they will not last many years, I presume; perhaps six, perhaps ten?—The great object now, I presume, is to make the lieutenants masters if it is supposed to be for the benefit of the service. But it would be a great hardship for the lieutenants' list to be swelled up with these old masters being put over them; that certainly, of course, would create a great deal of difference of feeling, and justly so, I think; but as you propose to put them on a separate list, that would be the only course, until they would become extinct.

1584. You think that putting them on a separate list would be the preferable course?—Yes, I think so. You would put some of the old masters at the foot of the commanders' list; that is all well and good; but some of the other senior masters would come to the head of the lieutenants' list, which would be hard on the lieutenants; and you cannot put them all at the foot, because it would be an equal hardship to the masters.

1585. Is it very material, so far as promotion is concerned, whether a man is at the head or at the foot of the list, provided he has served his time; does promotion go by seniority?—No; but seniority is everything in the service. If a man cannot get promotion he looks to seniority.

1586. You admit that there is a difficulty in dealing with the class of masters, do you not?—Yes.

1587. Would you consider that the difficulty is so great as to render it better to continue on as we are doing at present, and not attempt any change?—I think it would be decidedly better for the service at large if a change were made. As I said before, the arguments in favour of the masters' line being discontinued are very numerous.

1588. Do you happen to know yourself whether it is the practice now of commanders and young captains to navigate their own ships?—I believe so, in combination with the masters.

1589. Do you know any case of a ship's having been without a master within the last few years?—No, not within the last few years. I know a ship that was out on the China station without a master, and the navigation was done nearly the whole commission by a midshipman, or at all events for a very long time it was done by a midshipman; that ship, which was the "Amazon," was commanded, I think, by Captain Troubridge, and the captain placed great dependence upon one of the midshipmen, and he had no anxiety at all about the vessel, although he supervised it, of course.

1590. You stated that the lieutenants are generally less attentive to the navigation of the ships than the masters are; is not that in consequence of

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of their other especial duties, more than from any indifference to navigation?—Certainly, it is owing to their other duties.

1591. Do you think the safety of Her Majesty's ships would be as great as it now is, if the frequent change of navigating officers took place which you propose?—Yes; supposing the captain to have been a navigating officer himself when a lieutenant. As I said before, if a man has served the whole time as a first lieutenant, and then as a commander, and becomes a captain without having navigated a ship on his own responsibility, I think that the safety of the vessel might be questionable; but as you put your question, I think it is just as safe, with the proviso that the captain is brought up in that school. If lieutenants are made to navigate vessels it would ensure greater competency in our captains hereafter.

1592. Do you consider that the masters complain more of the want of rank with the executive branch, or the want of rank with the civil branches of the service at the present moment?—With the executive more than with the civil branches.

1593. Do you consider that the masters should look upon the advantages of pay and half-pay which they at present enjoy as a set-off against their want of promotion?—They must necessarily look to them, as the only advantages they have.

1594. You have expressed yourself very confidently as to the ability of the lieutenants to navigate their ships; have you ever navigated a vessel yourself?—No, I have not.

1595. Have you generally found the masters efficient officers in the execution of their duties?—Yes.

1596. Do you consider the master at present an over-paid officer?—No.

1597. You stated that the masters received double the pay and allowances of lieutenants; are you prepared to substantiate that statement?—In many cases that is so.

1598. Can you name them?—A master serving over 25 years receives double the pay of many lieutenants; and with regard to allowances, they have pilotage and all the store allowances.

1599. Are you aware that no officer in a line-of-battle ship, though he may nominally have the supervision of the stores, is paid any store allowances, unless, in the absence of the boatswain and carpenter, he has charge of them.

1600. I am aware of that; but it does occur very often that he has charge of those stores. In our ship we had no carpenter for a long time, and the master received, I think it was, 2 *s.* 6 *d.* a day. And also, in speaking of allowances, I might mention the handsome allowance of 5 *s.* a day which the master gets in a flag-ship, besides his pay.

[The Witness withdrew.

Adjourned to to-morrow, at Twelve o'clock.

Friday, 28*th February* 1862.

PRESENT:

Rear-Admiral the Hon. C. G. J. B. Elliot, C.B.	Captain George Goldsmith, C.B.
Captain Washington, F.R.S.	Captain Charles Henry May.
	Commander Cornelius T. A. Noddall.

Rear-Admiral the Hon. CHARLES G. J. B. ELLIOT, C.B., in the Chair.

Captain HENRY BONHAM BAX, H.C.S., Examined.

Captain *H. B. Bax*, H.C.S.

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1600*a*. YOU are an Elder Brother of the Trinity House?—Yes.

1601. I believe you superintend the examinations in pilotage of masters for the Royal Navy?—Yes; I am the chairman of the Examining Committee.

1602. Will you state how long you have been an examiner?—I have been on the Examining Committee for eight years, but I have been three years the chairman. We go into the Lighthouse Committee first, in general, where the practical knowledge of the Channel is obtained by being often afloat.

1603. Do the masters generally pass well in their first examination?—We find that most of them are very intelligent young men; but what they complain of is the want of practical knowledge of the Channel, and some correspondence has passed between the Trinity Board and the Admiralty upon that subject. I first brought it to the notice of our Board when Admiral Gordon was our deputy master, and it was represented to the Admiralty. I always found that they complained of the want of proper practical experience, and wished them to have a steamer about the size of the "Vivid" to go about the Channel and get instruction, for three months at least before they come up to pass the examination at all; considering that the mere book knowledge is of no use in taking charge of a ship in the Channel in the great prevalence of thick weather there. Most of the young men have been on foreign stations in the Mediterranean or Pacific, and other places, where they could have had no opportunity of acquiring a practical knowledge of the Channel. It is only a small portion of the navy that have had an opportunity of knowing the Channel pilotage. In the absence of that practical knowledge, they have nothing to trust to but the charts, and this book which I have in my hand, which was written by Mr. Biddlecombe, the late master of the Baltic fleet. It is not an official book, but so far as this book goes it is as good a one as they have, but it requires constant correction; we are always placing more light vessels or buoys, and changes continually occur; therefore this book requires annual correction.

1604. Will you state what the examination of the

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the Trinity House is?—The examination is a thorough examination for the British Channel, with a very strict scrutiny as to the positions of the buoys and the turning points. We always begin with the port most frequented by the navy, which is Portsmouth, as being the principal naval port. We ask them what buoys they have on each side, viz., the Dean and Horse sands on the one side, and the Princessa with the Nab and Warner lights on the other; and we make them give us the cross marks of all those buoys at the extreme points of these shoals. Then we make them give us the bearings and distances from buoy to buoy on both sides; the leading marks into Spithead; the anchorage at Spithead. In fact, it is a most complete pilots' examination.

1605. Are you referring now to the examination for second masters?—Nobody comes up to us except those who are passing for masters; masters of frigates, first of all; then after they have been so many years passed for a frigate, they come up for a line-of-battle ship. If we find that they are not up to this Portsmouth examination, the pilotage through the Needles, and so forth, we do not go on with them, because that is the most difficult part. We say to them, come up next week or the week after, when you are ready. But when passed through the more difficult part, we begin from Scilly. We will suppose a ship coming from abroad into the Channel, and we require them to tell us exactly where they would come in, and then the whole of the lights on the north side on the coast of England, and also those on the coast of France, and the bearings and distances from headland to headland. Then they have to pass a thorough examination for Plymouth, Falmouth, and Torbay, and every place up the Channel that you can possibly be driven to by any chance; the depth of water on the French and English coasts where you can stand to and the character of all the lights.

1606. Is the examination confined entirely to the Channel?—With the masters of the navy it is entirely confined to the Channel. We consider that the masters are bound to pass as far as the Downs; but we do not turn them back for the Downs, because a man-of-war always takes a pilot at Dungeness, and therefore she is in pilot water; but in case they should ever be in the Downs without a pilot we always make a point of examining them, in case of breaking adrift out of the Downs; and therefore we ask what they would do in case of accident. But still, though the Admiralty orders them to be examined for the Downs, we always go rather beyond, because we ask them in case they cannot get a pilot when in the Downs, what they would do if driven out of the Downs. Then we make them give us the marks of the Bunt Head and South Brake buoys, which are the two buoys forming the entrance of the Gull Stream from the southward, where the entrance is narrow, not above three quarters of a mile wide. Then we ask, in case they are adrift in the North Sea, what dangers they would have to avoid, for instance, the Galloper and the Kentish Knock, &c., and we bring them to the back of the Goodwin Sands, so that they have a thorough examination in pilotage for the Downs. They have to tell us of all the buoys, the four Monster buoys at the back of the Goodwin Sands, and the South Sand Head light vessel; from thence we work as tacking down Channel to get into Portsmouth again. The beginning of the examination that I mentioned from Scilly goes to Portsmouth, and after they have passed to Portsmouth they begin in the Downs, and go down to Portsmouth, taking Beachy Head, the Owers, &c. In fact, it is as complete an examination as any man can go through for a Channel pilot.

1607. What difference is there in the first examination for a master and the examination for a master of a line-of-battle ship?—The only difference is this, that we are rather more particular, if possible, with the masters of line-of-battle ships, as to the depths of the water and the rise and fall of the tides, which are very remarkable, being at Dungeness 27 feet, and at the Needles only seven feet. All those particular points are attended to, as proving that they should not go through the Needles with a line-of-battle ship except in the greatest emergency. The only additional examination is the going into Hamoaze. We examine from Plymouth Sound, round Drake's Island, into Hamoaze, to the anchorage off the dockyard. They have to give us all the marks leading from one point to another till they anchor the ship there.

1608. Are there many rejected on the first examination for masters?—No, very few; because we are as fair as we can be with them. If we find that they are nervous or agitated, and have not had much experience, and no confidence in themselves, we say, you do not seem to be up to the mark exactly to-day, you had better wait a little, and come up again next week, or the week after. The Admiralty allow you a month, and therefore come up again when you feel disposed; any Tuesday, and you will always find us here. We try to lead them on as much as we can; but the great difficulty which they complain of is this: they say, "We really have no opportunity of learning the Channel pilotage; we want a vessel. We are perfectly aware of the fault which you find with us, but we cannot help it." A man says, "I have not been in the Channel for three years, and I come here to pass; but what can I know practically about it?" We have written to the Admiralty several times on this matter, and they have partially taken it up, but they have not taken it up in earnest, so as to see it executed. My idea is, that they want a couple of vessels, about the size of the "Vivid," one at Portsmouth and another at Plymouth; so that every one before he comes up should have about three months' training in her, taking notes of every leading mark in and out of all the ports, through the Needles, and everywhere, so as to be able, if he sees the marks, to take a ship in with confidence.

1609. Do you think that it would be desirable to extend the examination to other seas than the Channel; the North Sea, or any others?—No; I do not. There are no means of keeping up the practical knowledge of it. I think it would be rather dangerous to trust to the officers in the North Sea in a man-of-war. During the Baltic war there were some of them who managed their ships uncommonly well; but when they go away they forget it all again. I think unless people are always on the spot it is dangerous to undertake it, and that is a much more difficult navigation than the Channel.

1610. You do not ask any questions as to their knowledge of the foreign stations upon which they have been?—No; we have nothing to do with that. What the masters have to do with the Trinity House relate to nothing more than the Channel navigation. Time out of mind they have

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have come there to be examined in the Channel pilotage.

1611. Are you able to say in what estimation the class of masters in the Royal Navy is held in the merchant service?—I think they are much respected in the merchant service: judging by the results, no one can find fault with the manner in which men-of-war are navigated, the loss of a man-of-war being of such very rare occurrence. There are about 1200 merchant ships lost every year; but that is owing to other causes, not from bad navigation. It is from under manning and over loading that the merchant ships are generally lost.

1612. Do you think that the masters in the Navy are well looked upon by the merchant service?—Yes, I think so. I never heard any thing to the contrary. Nobody I have ever heard has said anything against them, except as to their want of practical knowledge of the Channel; but we go by the results. It is wonderful how they get on so well, considering that they have so little practical knowledge of it. We always caution them to learn all they possibly can, and to keep up their knowledge, and get all the newest and best charts. We impress upon them their responsibility to a great extent before we give them their certificate, and the result shows that it is successful. It is very rarely indeed that a ship gets into a scrape. Men-of-war have always advantages which other ships have not; they are always well manned, and plenty of officers to keep a good look out; but a merchant ship has not always those advantages.

1613. Are you aware that the masters and the mates of merchant ships can become qualified by examination for the situations of master and second master in the Royal Navy?—Yes; but they have to serve as second masters first, I believe.

1614. Are you aware that Article 13, page 54, of the Queen's Regulations, states, "The Admiralty may, at their discretion, appoint gentlemen from the merchant service to be second masters, or acting second masters in the Royal Navy, provided they shall have been five years at sea, three of which in the actual capacity of master, mate, or officer of a merchant vessel; and further, that they pass the examination prescribed for second masters or acting second masters of the Royal Navy, as the case may be; are not less than nineteen, nor more than thirty-five years of age, and produce certificates of diligence, sobriety, and good conduct, from the owners and masters of the merchant ships in which they have served?" —I was not aware of that before. I have often heard it spoken of, but I never knew that a man could go at once as a master into the Royal Navy. I think there is no instance of its being done. I never knew a man come up to us who has said that he had come at once from a merchant ship.

1615. Do you know instances of masters or mates of merchant vessels going into the Navy as second masters?—No instances of masters; but mates of merchant vessels do so constantly, because there has been an advertisement to invite them to come.

1616. Do you think that we could have a good class of men to join from the merchant service as mates?—I think if there was sufficient encouragement given you might get a better class of men through this regulation to go as masters; but then they must be men who have served as chief and second mates; for instance, in Mr. Green's ships, or Mr. Smith's ships, or some first-class ships; but whilst a man has a good ship, and a prospect of a command, you cannot expect him to leave; therefore the danger lies in getting men who cannot get a berth elsewhere. That is why so many come now out of the merchant service. I expect a really good man is generally in demand, because the officers of merchant ships are so few that they must have good men, or else they will not have them at all; but that must be done by being very particular in looking after them. I think that the second mate of an East Indiaman and the mates of some of those ships that are in constant employ are very clever navigators, and first-rate men; but very few chief mates would come into the Navy, because the chances are they would get a command in their own service, which is much better than entering as a master in the Navy. But of course a master R.N. has a better berth than any of those officers, provided they always remained officers; but the reason why men of the merchant service, generally, are reluctant to become masters is, because they do not rise, and they fancy that they are under the young lieutenants all their lives, and they wish to rise to something better.

1617. Should you think that there had been a falling off in the proficiency of the officers who come to be examined for masters of late?—I do not think so; they are not the same practical old seamen as we used to have in former times, because many of them then came at once from being captains of merchant ships. In my experience of the Navy there were three men that we had in those days who had all commanded ships. One had been a captain of a collier; and another was a Mr. Bryden, who was also a good practical navigator, and had commanded a West Indiaman; and there was another, a Mr. Tilley, who had commanded a ship, and served with me in the "Hebrus" frigate in 1815. These were all very superior men, and how they could come into the Navy as masters then I do not know. We could not get them now. The pay was not more then than it is now. Perhaps the prize money induced them to join; they all made a great deal of prize money in frigates and small vessels. You could not get masters from the merchant service to come and be masters in the Navy, unless you went to the small vessels, and took men of an inferior class, unsuitable to the service.

1618. In fact, in general there is a superior class in the merchant service to what there was formerly; is that so?—In the higher grades of the merchant service, that is so; but if you go very low down, I think they are rather worse now than they were formerly, being so very ill paid.

1619. What class of men have they in the large companies, of which there are so many now?—Those steam companies, the West Indian Mail Company, the Peninsular and Oriental Company, and Cunard's line, have some very clever men, and they have been most successful in making good passages.

1620. There are probably greater advantages held out to them? — Yes; but they have all been brought up in sailing vessels originally; I believe that some of Messrs. Green's officers are among the best we have in the country as seamen in the working of their ships under sail. Many of the others are steam officers in paddle-wheel steamers.

1621. You were in the East India Company's service formerly, were you not?—Yes; I commanded

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manded a ship in the East India Company's service.

1622. I believe the officers in that company were noted for their experience and skill in navigation?—Yes, certainly, in the Eastern seas; but they had not much experience in the British Channel. Their observations were continually being taken, and they prided themselves upon that. The captain navigated the ship entirely himself, and he generally selected an officer to assist him in the navigation. The second mate was usually chosen. There were always three chronometers, and sometimes six or seven, in a ship, and we frequently took lunar observations.

1623. When an East Indiaman came into the Channel, did the captain pilot his ship?—We always took her up to the Lizard ourselves, and we had such excellent instruments that we were hardly ever out of our reckoning, and then we got a pilot as soon as we could. There was no expense spared. Directly we saw the flag of a Portsmouth pilot we took him on board, and he took us to Dungeness, but the captain was held responsible till the Dungeness pilots took charge.

1624. And did you do the same in the Hooghly?—Yes; there were always brigs cruising long before we arrived at the Sand Heads. In going to China we were obliged to do the work entirely ourselves, going through the Straits of Malacca, Straits of Gaspar or Banca. When in the China Seas we were obliged to take the vessels into the entrance of Canton River; but that is a very safe coast, and we never went to the northward of Canton in our ships.

1625. Who took charge of the navigation of those East India ships?—The captain entirely.

1626. Was he assisted by any officer?—Not officially, but he chose an officer always to help him in taking charge of and rating his chronometers, and in taking observations.

1627. They never had in the East India Company's service a class of officers set apart to navigate their ships?—Never.

1628. Had the captain of the ship many other duties to attend to besides the navigation?—Keeping the ship in order, and looking after everything; but with such good officers as we had, and plenty of men, it was an easy berth, no trouble in getting anything done, and no anxiety till we got near land.

1629. Did they carry passengers?—The Bengal ships did; but the ship that I commanded was a China ship. We used to go to Bombay and China, and so we only took passengers or troops as far as Bombay; the rest of the voyage we were almost always by ourselves, with only our own officers.

1630. You have spoken of the passage through the Gaspar and the Banca Straits; is not that navigation about as difficult as any in the world?—Yes; I should think it is. Gaspar is where the "Alceste" was lost; that was the most anxious duty we ever had in the East India Company's service; but when there was any doubt, we could anchor, almost always, except in Gaspar.

1631. It was a rare occurrence, was it not, for a ship to be lost in those Straits?—I do not remember any one being lost. I remember one getting ashore, the "Bombay," and she got ashore off Hog Point, in the Straits of Sunda, in 1814, before I joined that service.

1632. And yet the captain navigated his ship through this channel?—Yes; he was obliged to do so; in fact, there were no pilots about there. But those officers were brought up entirely in that trade, and therefore they knew it, and had it perfect; and they were not shifted about from one part of the world to another, as they are in the Royal Navy, or any other service; they knew those voyages perfectly.

1633. At that time were there pretty good charts?—We always had Horsburgh's charts, and we never found any fault with them; but since the progress of the Navy has gone on so much to the northward it is quite different to what it was then. We never went beyond Canton, and then the charts we had of Horsburgh's were quite correct enough for anything.

1634. With those charts and sailing directions there was no difficulty in the captain's navigating his ship?—No; not with Horsburgh's sailing directions and Horsburgh's charts. He was one of the best men of the day. I never found Horsburgh out in any way. He was a most safe man to go by; he always gave you some sort of latitude, one way or the other, to escape.

1635. To return to the subject of English pilotage, you stated, did you not, that Mr. Biddlecombe's little pamphlet is the one generally used by officers to prepare for their examination?—Yes; I have brought it with me, and, as I say, it is the only one they have got. It is not an official book, but it is a very good book; the best I know of in an abridged form. We publish nothing at the Trinity House but notices; but we have our own books and memoranda, what we call our buoy books, in which every buoy around the coast of England and all the cross marks are registered. And we keep it up. There must be somebody to keep it up; that is the difficulty. Each of our vessels carries one of those books, which we call buoy-books; and then the masters of those vessels are always moving about, watching every change, and the book is sent to the committee once in six months, and completed.

1636. You are of opinion, are you not, that it is extremely difficult for a private individual to keep corrected a pamphlet of that sort?—Yes; although the sailing directions may do very well for the time when they are published, a year or two afterwards they must be corrected, in many cases. For instance, this last year we have opened two new channels on the coast of England; the Shingles' Channel, and also the Corton Gatway, off Lowestoft. I myself, with two of the Committee, superintended the buoyage of those two channels, and Mr. Calver came afterwards, and made the survey most complete, and now they are two of the best channels we have; but at the time the "Blazer" was surveying there it did not seem then desirable to open them; in fact, one of them did not exist at that time. Channels are constantly opening. Now this new channel is opened, called the Shingles, it cuts off two or three miles coming up the Thames.

1637. Is there a hope that that channel may remain open?—I think there is no doubt of it; it keeps getting deeper and deeper. There is only one little patch of 22 feet, which is loose shells. I saw some of it—small broken shells; you can put your hand easily through it, and there is no doubt that the force of the tide will wash it away and deepen it. A line-of-battle ship can go through that channel quite safely at the first lift of the tide.

1638. Under the circumstances that you have stated, of the constant changes on the coast of England, is it safe to entrust a branch of pilotage of that sort to the hands of a young master?—

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The examination of master relates only to the British Channel as far as the Downs westward. There is not much change there, except the additional marks and light vessels, which happen now and then; but what we were speaking of before, namely, the east coast, which you yourself, Admiral Bullock, and others have surveyed, is always shifting, and that is a dangerous part to give directions about; but in the British Channel, which we have all known from our boyhood, there is very little change. But then this book requires correcting all the same, and we correct it at the Trinity House, because we put in fresh light vessels and buoys every now and then. For instance, there is the "Varne" light vessel, where we put a red revolving light soon after the loss of the "Blervie Castle," in October 1860; and therefore this "Varne" light is established now, and a most useful light it is. Then there is the Varne buoy, five miles from that.

1639. Are they noticed in that pamphlet which you hold in your hand?—This is dated 1860; it is the latest edition, in the early part of 1860, and therefore the Varne light could not be noticed therein.

1640. Do you know how long that light vessel and buoy had been placed before a new edition of that pamphlet was issued?—No edition since published.

1641. Do you consider it desirable that young officers should learn the navigation of the Channel from a bare epitome like that, rather than taking the full sailing directions?—I think that the sailing directions are not better than this book of Mr. Biddlecombe's; they are not more correct, and they are not kept up more than this is.

1642. Have you seen the "Admiralty Pilot of the British Channel"?—No; it is no doubt very excellent for the present time, but it will require revision, as this does.

1643. Are you aware that it is the practice of the Admiralty to issue what are called hydrographical notices, immediately on the change of any light or buoy round the coast of England?—Yes, decidedly, I know they do it.

1644. And that every chart agent is obliged to put those notices into any other of the "Channel Pilot" that he sells?—Yes; I know that is a very desirable way of doing it.

1645. You threw out a useful suggestion, that young masters should be sent along the coast in a vessel for three months to learn pilotage; should you recommend a steamer or a sailing vessel?—I think a steamer; you could get through the work so much better, and save a great deal of time.

1646. Do you consider that three months will be sufficient?—I should think so; but then there must be a good master on board to instruct, and take the notes. Every one should have his book, as we do, to take down the notes, going in anywhere, where the buoys are on each side and the leading marks, and then they would have to alter the leading marks as they enter another part, so as to note it down on their memories.

1647. In consequence of the admirable system of lights now established by the Trinity House, and the buoys that are placed, has not the navigation of the Channel been simplified tenfold within your memory?—Yes; there are more than double the lights that there were when I first went to sea.

1648. Do you consider that there is any such great mystery in the navigation of the Channel that it might not easily be attained by a young officer who pays proper attention to it?—Certainly not in that part of the Channel which masters are examined for.

1649. With regard to your examination of those young men, do they lay off their cross bearings on the chart before you, or is it done from memory?—It is done from memory. We say, when you get up as far as the Nab Light, what are your cross marks for the Nab Light, and they repeat it from memory. We have no books or charts before us at the time of the examination.

1650. Would it be desirable if it were made imperative for those young men to pass through the Downs, instead of up to them?—It is generally considered pilot water; but no doubt they ought to know it, and therefore we examine for it from our own ideas, for if you happen to get into a man-of-war without a pilot, or if the pilot is taken away, you ought to know, in case of your breaking adrift, or a vessel running foul of you, how to get out of the scrape.

1651. You think it would be desirable if that were part of the training?—I think it would make them attend more to it, and they should know those light vessels a long way to the northward; the Kentish Knock, and the Galloper. They should know how to get out of the Downs, and then come back again, and the depths of the water are also very important.

1652. What do you think would be a sufficient encouragement for mates in the merchant service to enter the Navy as masters and second masters?—As second masters you could not get any one but the young officers, who know so little, who had been midshipmen on board an Indiaman, perhaps three or four voyages. Some of them, that wanted a berth would come, but not the best of them as second masters. The regulation to which my attention has been called is a very good one, if it were gone on with; but I do not think it is much known. Those mates are the best men to get as masters, if you could get them, and make them masters at once; of course they would look upon it as a matter of payment.

1653. But do you think that the present situation of masters in the Navy is a sufficient inducement for a man to accept the appointment, if he could get it?—I hardly think there is encouragement enough. I think the principal complaint that I have always heard of is, that they cannot advance in the general service; that they make lieutenants now very young, and then a man perhaps of 40 years of age is under them.

1654. If they could advance with the other officers, do you think they would gain experience sufficient for their duty as masters?—It must be either one thing with them or the other, of course. I think you would get better men to come in if they knew that after a time they were to be promoted to something or other; as a commander or post-captain afterwards, and look forward to that in their old age.

1655. Then you would lose their services as masters?—But they might serve as such for some years.

1656. Have you ever heard them make any complaint of the pay in the Navy?—No, I cannot say that I have, because, comparatively with the other officers of the Navy, they are well paid; only that the other officers of the Navy have the chance of getting to the higher ranks, which they have not.

1657. And, comparatively with their usual pay in the merchant service, it is pretty good, is it not?—Yes; it is as good as any of the chief and second mates; but not so good as the captain's, of course.

1658. Can you suggest any improvement in the present examination that you give for officers in the Navy?—So far as the examination is concerned, I do not think it could be improved, unless

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less in the way that you mentioned, that is to say, extending that officially which is now only done voluntarily. The only suggestion that I can propose to benefit them would be in the way I mentioned, the acquisition of a practical knowledge of the coast, which can only be obtained by moving about, as we do, in our Trinity steamers. The Elder Brethren, when first they join, know very little about the Channel; but they go for a fortnight or three weeks' cruise sometimes, and they take their notes themselves, and note down their own observations, and constantly exercise the memory; those which have the best memories make very good examiners; and any young man, by following out that plan, if there was a small steamer at Plymouth and another at Portsmouth, might do the same.

1659. In short, all that is wanted for their present examination is the practice?—Yes; thorough practice. To examine a man about Plymouth Sound who has never been into Plymouth seems to me useless, because he does not know the land when he sees it. He cannot know Drake's Island; he cannot know the Breakwater Lighthouse; and in a ship coming from a foreign station in thick weather he would get nervous and frightened, and get the ship ashore before he saw any light at all.

1660. With regard to the captains of merchant vessels possessing first-class certificates, what are their qualifications as to the pilotage of the Channel, in comparison with that of masters in the Navy?—I think practically it is just sailing down the Channel, or working down the Channel.

1661. Do they pass for the Channel?—Not so strictly as the master for the Navy, nor anything like it. When they go to be examined after they have passed for the seamanship, the same examining captain asks them the character of the lights of the Channel all the way from the South Foreland down to Scilly, and then the depths of the water at each point, and the lighthouses on the coast of France; but they do not ask them the bearings and distances from headland to headland, as we do in the Trinity House. Every master must know the bearings and distances of every headland to headland to a mile.

1662. Are you aware that young men in the masters' line, who have been brought up in the Navy, and have received an education and gained experience in it, leave it to become officers in the merchant service?—No; I never knew any such case.

1663. Do you consider that three months' experience would give a man of ordinary ability a sufficient knowledge of the navigation of the Channel?—I think to begin as masters of frigates it would, along with the other advantages that they have, but they must learn it precisely the same as the Elder Brethren of the Trinity House have learned, by going in and out of all those places, through the Needles, and asking the masters to explain every buoy and every mark as you go from one place to another.

1664. Commander *Noddall.*] Do you consider the Trinity House pilots an efficient body?—I think in general they are. We have to keep them in good order. There are exceptions, of course.

1665. To what cause do you attribute their efficiency?—Their efficiency is tested by examinations and their good character for sobriety. That is the main thing. If ever we find a man drunk we unship him, if we can prove it; and they have to report every time their vessel gets ashore, no matter whether she gets off again or not; they must come up and report it themselves.

1665*a*. Do you consider that such an examination as the masters pass at the Trinity House tends materially to qualify the officers for the charge of ships in the British Channel?—I think it does qualify them, but it is imperfect, from the want of practical knowledge.

1666. In the event of abolishing the class of masters in the Royal Navy, you consider it essential that the other officers that are appointed to perform the masters' duty should be subject to a like examination for the Channel?—Decidedly, unless pilots are employed; but they should also have practical experience, which, as I said before, is the only way to make them perfect. In concluding my evidence, I beg leave to add, that having been requested to attend here without any reference to the Trinity Board, of which I am a member, I consider myself solely responsible for the opinions expressed therein, which are my own opinions, and not to be considered as those of the Trinity Board.

[The Witness withdrew.

Rear-Admiral CHARLES EDEN, C.B., Examined.

Rear-Admiral *C. Eden*, C.B.

1667. CAN you give the Committee any information respection the number and the class of officers who enter the naval service as masters' assistants and second masters?—I have with me a book which will show the numbers that have been entered in each year. I was first appointed to this department in June, and consequently I can answer for all those that have been entered since that time. I find that 35 have entered since June last, of whom eight have come from the merchant service, nine from Greenwich School, and the rest are the sons of officers, private gentlemen, and clergymen, with the exception of one individual, who rose by his merit from being a ship's boy. I find, also, that there are 120 second masters in the Navy, including acting second masters serving abroad, who have not been able to pass their examination at home. Twenty-seven officers became acting second masters last year, of whom five have passed their examinations, and have been confirmed.

1668. There is an impression that a great many leave the service from choice, after having been educated for it. Can you give the Committee any information upon that point?—I cannot; but the Accountant-General would be able to prepare a return, giving the Committee the information which they desire.

HENRY DAVENPORT SARRATT, Esq., R.N., Examined.

H. D. Sarratt, Esq., R.N.

1669. WHAT is your rank and seniority in Her Majesty's Navy?—Master, of November 1857.

1670. Will you state, shortly, your length of service as second master in charge, and master, with the names of the ships, and the stations on which you have served?—I was second master in charge of the "Coromandel," in China, for 11 months; and in the "Alacrity," "Sea Mew,"

coast

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coast guard tender, and the "Black Eagle," as master, since November 1857.

1671. Are you aware of any feeling of discontent existing among the masters in the Navy?—Yes; I think a feeling of discontent exists as to the almost impossibility of their getting beyond the actual rank of master, or getting a share in the honours and rewards which are accorded to the other officers; and also, as to the relative rank which they have been debarred from sharing with their brother officers with whom they ranked before, owing to the late circular. And also, there is a great objection to the name itself, as being a very ill-defined one. People on shore do not understand it. For instance, I, myself, having been introduced to a lady, she asked the person who introduced me what my rank was, and on being told that I was a master, she asked what it was, whether it was a schoolmaster.

1672. Do you think that that is the case generally with the people with whom you associate?—I think so, beyond the immediate locality of a naval seaport. I do not imagine that to be the case in the leading naval seaports; but where I have been employed for the last three years, in Liverpool and on the west of England, that is so.

1673. Do you suppose that ladies, or people away from seaports, know the difference between a lieutenant in the Army and a lieutenant in the Navy?—I do not know; but I fancy that that would scarcely bear upon what I wish to convey to the Committee. What I wish to convey is, that we have no defined rank which is known on shore. You go on shore as plain Mr. So-and-So of the Navy; you are merely a master, and very few understand it on the west coast of England especially.

1674. Notwithstanding that, the masters in the Navy have been a class who have been very much looked up to, have they not?—Yes; by the mercantile seamen, who know what they are.

1675. Do you think that the masters are contented with their improved rates of pay and half-pay?—I think so, as a general rule.

1676. The masters appear to have an advantage over their equals in the executive branch in pay and half-pay; do you look upon those advantages as in some respects a set-off against the limit placed upon their rank?—No, I do not; when I consider that a second master is kept so much longer before he is promoted to the rank of a master, than other officers of the executive branch. However, it is not the same now, because I see they are beginning to promote them much more rapidly than when I was a second master.

1677. You do not look upon that as in any respect a set-off against the limit placed upon their rank?—I look upon it to a certain degree as a set-off, but not as an equivalent.

1678. With regard to rank, do you allude particularly to the civilians having, in rank, been raised as compared with the masters?—Yes; that we do not, as masters, enjoy the same relative rank as those officers of the other branches of the service do, who were our brother officers before.

1679. With whom do you rank now, with regard to army rank?—With a captain, being an officer of under eight years' standing.

1680. With whom does a surgeon under eight years rank?—As a major, but junior of that rank.

1681. Do you think that there is any feeling that the masters do not rank with the lieutenants and the executive officers as they ought to do?—Yes, I do.

1682. On what grounds?—I think that most men, I should say, most senior masters especially, feel aggrieved at being obliged to rank immediately after every lieutenant, no matter how junior he may be.

1683. A senior master would have precedence as a major, would he not?—Yes.

1684. And he would take command, would he not, after a lieutenant of the Navy, who ranks with a captain in the Army?—Yes.

1685. Do you look upon the duties of a master and a lieutenant as being very distinct?—Yes, I do; as the service is constituted now, the duties are laid down very distinct.

1686. Do you think, therefore, that it is desirable that the masters should take command above lieutenants, and perform duties to which they are not accustomed?—No; I should not suggest that, but I should suggest that if a master was allowed to take command with the lieutenants according to his seniority, he should not interfere even with the interior discipline of the ship, except in the event of the captain or commander being killed in action, or being incapacitated from taking the command of the ship, by sickness or absence on shore, or anything of that kind.

1687. That is to say, that he should still perform his own duties, and that the lieutenant, even if junior to him, should conduct the ordinary routine duties of the ship?—Yes.

1688. Do you think that the masters would feel satisfied with the position which you have suggested?—I cannot answer for the older men, of course; but I think for myself, as one of the younger men, that I should be satisfied, provided I had, in addition, a fair and reasonable chance of getting on to a higher rank than I at present hold in the service, if I distinguished myself in any way.

1689. Do you think that the navigating duties and the pilotage duties are well performed, under the present system?—As a rule, I think they are.

1690. Do you think it would be beneficial to Her Majesty's naval service, that the classes of masters, second masters, and masters' assistants, should be done away with as a separate branch of the service?—Yes, I do.

1691. Why do you think so?—I think, in the first place, that it would prevent a great deal of the bickering and heart-burning which takes place in the case of officers placed as our old masters are, as I have just been saying, under very junior lieutenants; and I think that the duties performed by the masters now, might be as well performed by any lieutenant whom the captain chose to delegate to help him in navigating and conducting the ship.

1692. You think, that although the duty is well performed now, it might be well performed under another system?—Just so.

1693. You do not advocate a change, because you think that the service is ill performed?—No.

1694. To whom, then, would you assign the master's duties, if the class were done away with?—I should say, that every lieutenant, when he passes his examination, is competent to perform the duty, and if any of them knew that they were liable to be called upon at any moment, they would all keep themselves up in the work, and

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consequently the captain could make a selection of any one that he thought best qualified to assist him in the navigation of the ship.

1695. At present, your time, as master, is devoted very much to one particular branch, the navigation and pilotage, is it not?—Yes.

1696. Could you give a lieutenant equal practice in that line, if he performed the general duties of a lieutenant as well?—Yes; I think that that might be done.

1697. How would you manage it?—Just as in some instances masters and second masters have, in addition to performing their own duties as masters and second masters of ships, to perform the duties of commanding officer as well, without there being any great strain upon them. I think it might be done by a lieutenant, but I would, while a lieutenant was so employed as navigating officer, exonerate him from the other duties, and not make him keep his watch and navigate the ship at the same time, especially if he is in pilot waters, and is supposed to be responsible by the captain for the safe conduct of the ship.

1698. Do you look upon experience in that particular work as desirable or necessary for an officer who is appointed to a large ship?—As to the actual conduct of the ship, I imagine that a large ship may be as easily conducted as a small one, at sea.

1699. But supposing her to be in a fleet or squadron and not far from the shore, how would it be?—Then, of course, I should say, the more experience the officer had the better, especially sailing in a fleet. I think, certainly, that the duty that the master performs might be performed by any lieutenant, if he only kept his knowledge up, having once passed his examination at the college, the same as a master does.

1700. The college examination is confined to navigation, is it not?—To navigation alone.

1701. A master must pass examinations in pilotage as well, must he not?—Yes; he must pass examinations in pilotage as well at the Trinity House.

1702. Is it not the case that the master of a large ship has always had experience in some smaller vessel as master?—I think it is.

1703. How would you propose that a lieutenant, who is to navigate a large ship, should attain the knowledge necessary for the duty?—Of course he is supposed to be qualified by having passed his examination at the Naval College in navigation, which is exactly the same as we have to pass; and as far as regards pilotage, a great many masters learn that from books and charts, without ever having been, perhaps, to the eastward of Portsmouth. I myself have had a better practical knowledge, perhaps, from having been employed when I was a boy in one of the small men-of-war cutters, the "Emerald," and having been employed carrying supernumeraries up and down the Channel; but many masters do not have that opportunity, and they only learn it from charts and books.

1704. Has your chief attention, since that time, been directed to the navigation of a ship?—That was a very long time ago, and of course I have since then been a master's assistant, second master, and master of ships. But during the period that I was master's assistant I had very little to do beyond assisting the master, the performing my duties in the hold, and sometimes keeping a watch. As second master of the "Spartan," I had to conduct the ship on several occasions during the sickness of the master, and once I had to do that from Singapore to Hong Kong against the monsoon.

1705. Had you any further experience of that sort whilst you were second master?—Yes; in the "Coromandel;" after that, as second master in charge of the "Coromandel," in all the rivers of China, during the time that we flew your pennant and Sir Michael Seymour's flag.

1706. Had you been actually conducting the "Coromandel" as pilot?—Yes; I piloted her in China, on almost all occasions in all the rivers, except the River Ming.

1707. Did you gain considerable knowledge of the river navigation in China?—I did, but it was purely from the charts.

1708. Added, I presume, to the practice?—Added to the practice, of course.

1709. Practice gave you confidence, did it not?—Yes, continual practice gave me confidence.

1710. Do not you feel that it is that practice which is necessary to give confidence?—On all occasions I should say that that would not be the case, because if a man knew that he was liable to be called upon at any moment to do a certain duty he would feel it incumbent upon himself to keep himself really qualified for the work.

1711. Do you think you would have equal confidence in navigating and piloting a ship at this present moment, if you had not had previous practice?—Yes, at this present moment; for when I first undertook the navigation of a ship I felt at that time perfect confidence in myself, although I was but a young second master.

1712. From the time you were a young second master, you have had frequent opportunities, have you not, of navigating and piloting vessels?—Yes, frequently in China.

1713. When did you pass for second master?—On the 7th of April 1852.

1714. When were you promoted to master?—On the 27th November 1857.

1715. Then you had had considerable practice before you were made master?—Yes.

1716. Had the second masters of gun boats similar practice to yours in the "Coromandel"?—Yes. I was not out there with any of the gunboats, but came home before the time that you refer to, and therefore I cannot answer that from my own experience, but I should imagine they had, because they were vessels drawing very much the same water as the "Coromandel."

1717. How many years had you been at sea when you were made master?—Fourteen years I had been at sea. I had entered the service 14 years before, but at the time I was master's assistant I had sometimes to be a considerable time out of service before getting another ship.

1718. How many years' service had you before you were made master?—Twelve and-a-half years' service.

1719. Do you look upon that as more or less than the service of the general run of the masters who are promoted?—I think it is about the general run, unless they have lost, in the way that I did; but I think with the general run of second masters it is about six years before we get promotion.

1720. How long do you think a midshipman has to serve, in general, before he is promoted to lieutenant?—They have so very erratic a way of promoting that I could not give an opinion.

1721. In your own case you had had considerable experience before you became a master?—Yes,

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Yes, in pilotage in China particularly, and in the English Channel also as a boy. One never forgets, I should imagine, what one learns then.

1722. Would lieutenants in general, when promoted to lieutenants, have equal service afloat as compared with your own case?—I think decidedly not, or, at least, very few of them.

1723. You think that the masters perform their work in general very well at present?—Yes.

1724. But you think that for other reasons it would be better to do away with the class of masters?—Certainly, it would be. Their work could be carried on by any lieutenant whom the captain might choose to nominate for that duty, not requiring him to do any other duty in the ship except that duty.

1725. How would you give him the experience that the masters generally have?—By practice.

1726. Would you keep a lieutenant always engaged upon that work?—That would rest with the captain. He might, as I said, select the lieutenant that he considered best qualified to assist him in the navigation of the ship. Of course that change should not take place too suddenly, because many lieutenants who have not been called upon to perform those duties might not at present feel themselves exactly competent; but I think it might be done after a very short time, if they had equal opportunities with the master. The examination for the English Channel pilotage might be generalized more than it is. They should not be required to know such a great number of bearings of buoys and things that perhaps they may never see. If they have a good general knowledge of the Channel, the direction of the shoals, and the marks to avoid them, that would be sufficient.

1727. Supposing the class were to be done away with, and that we bring up lieutenants as you propose, how would you dispose of the masters, second masters, and masters' assistants now in the service?—I would of course suggest that the senior masters should be placed upon the captains' or commanders' lists, according to their seniority. That is certainly a question which has never struck me, but I should imagine that something like that might be done. A certain number of masters below a certain seniority, might be placed upon the lieutenants' list, leaving them in all instances the half-pay that they are now entitled to, because they have been so many years in arriving at their rank, and they have had so many less opportunities of getting a further advance than the rank which they now hold. Therefore I think it would be rather unfair to reduce their half-pay.

1728. Do you not think that that might act unfairly towards the lieutenants and commanders, as regards their promotion?—I think it might to a certain extent, but I think that no change can be carried into effect without producing some soreness somewhere at least.

1729. In the event of the masters' class being retained, what would you suggest in order to remedy what are now looked upon as grievances?—I should say, throw open the door of promotion, and do not make it a dead letter. Although they say there is a door of promotion, yet still we never see any one promoted. I would say, let those men who qualify themselves for promotion take it.

1730. When you talk of promotion, do you mean promotion on to the other active lists?—On to the other active lists as commanders, and that they should take their chance of going up higher still.

1731. You would not look upon it as a rule, I presume, that the masters should be promoted to the other lists?—I should say, if you leave it to them whether they would go upon the other lists, of course, if they were very senior men, they would lose something by it, unless they were retired; they would lose in pay and half-pay in most cases; in half-pay especially; but I should certainly think that the door ought to be opened for them to advance themselves, if they like, in that way. Men who get beyond a certain age, like myself, would think there would be little opportunity of being promoted. If I were put upon the lieutenants' list to-morrow, I do not feel I should have the slightest chance, even with my seniority, of being made a commander before I was 40, unless I distinguished myself in some very gallant manner.

1732. You think that it would not be an advantage to you to be made a lieutenant?—Not in that way.

1733. Do you think it would be satisfactory that there should be a higher rank for masters, called masters commanders, or some other term, who might rank with commanders, and that the regular promotion should be on to that line, still keeping them a distinct class?—If the necessity exists for the class at all, and if they are to be kept as a class, I should say certainly let them have an opportunity of rising in their own line, and not have the invidious comparisons that there are now between the masters and the lieutenants. In that Article 2 to which I have been just referred a master takes rank in one place according to his seniority, but at the bottom of the article, no matter what his seniority may be, he is said to be junior, and subject to the authority of all the lieutenants.

1734. Has there been any alteration in that respect of late?—There is this alteration: they used to rank with but after lieutenants; now, according to this article, they do take precedence; but I do not see why that should benefit them at all, except in going to court, or a procession, or something like that.

1735. In taking the command they have always been junior to the lieutenants, have they not?—Since I have been in the service.

1736. And for very long before also?—Yes, I believe so.

1737. So that there is nothing new in the position of a master as compared with the lieutenants?—No.

1738. Why do you look upon it just now as such a hardship that the masters should take rank below the lieutenants?—I do not look upon that now as more of a hardship than ever I did. I do not refer to it now especially. I do not conceive that that is a concession in the article, for where a master gets his precedence that is only, after all, a nominal thing, and not a tangible thing at all, as I should imagine. Of course, that is only my opinion.

1739. Do you think it would be for the good of the service that he should not only have precedence of a lieutenant, but that he should take the rank of commander according to his seniority over him?—I think that would be a benefit to the service; it would do away with a good deal of the jealousy and bickerings and heart-burnings that exist at present.

1740. Do you not think that the lieutenants would

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would have a right to complain if this change which you propose were allowed to take place?—I do not see that they would. If the master is a responsible officer, and passes the same examination, and is as well qualified to take the command as a lieutenant, I do not see that there is any great reason to complain, because the influx could not be very great; there are not very many masters.

1741. The master enters the service, does he not, with the knowledge that he will not rise to the superior ranks on the active list?—Not in all cases. I myself knew nothing about it, neither did my friends, although my father was an old lieutenant in the Navy; still he was dead long before I joined the service, for I was only eight years of age when he died.

1742. What number of years would you consider sufficient to give a lieutenant the experience required to undertake the navigation and the pilotage of a line-of-battle ship?—I should imagine that at least before a lieutenant should undertake such a very responsible post as navigation or pilotage of a large ship, especially in narrow waters, he should have a year or two years' experience in a smaller vessel.

1743. Should he not have more than a year or two's experience?—A year or two, in addition to what he has already had to enable him to rise to the rank of lieutenant. He has had some considerable experience in seamanship in arriving at that rank in the course of his duties; and of course, if lieutenants were supposed to look out for the pilotage of the ship, I imagine they would make themselves competent, as well as a great many of the masters do, because there are many coasts as dangerous, if not more dangerous, than the English Channel, as to which alone the masters are examined.

1744. Do you think there would be any difficulty in inducing young lieutenants to take upon themselves the responsibilities of navigation, without some especial encouragement?—I think not; but a very slight encouragement would do; for instance, if it were put upon almost the same footing as the gunnery lieutenant in a ship. I should fancy that if it was looked upon as a kind of staff appointment, a lieutenant would be very glad to qualify himself for such a position, if by so doing he did not imagine that he would be stopping his further chance of advancement, by being a useful navigator, and a useful officer in that position.

1745. Do you think that for the safety of Her Majesty's ships it is necessary to have a distinct class for navigating them?—No, I do not.

1746. Do you think that it could be given indifferently to any officer?—If they are made to keep up the knowledge that they are supposed to have gained when they passed their examination at the Naval College. I conceive that any of those officers are supposed to be able to navigate Her Majesty's ships, according to the tenor of their certificate, and consequently they must be able to do it, or ought to be able to do it, although perhaps in the case of those who are at present serving their knowledge may have fallen into disuse from want of practice.

1747. What is it that has generally made the present masters so very efficient a class of officers for the duty they perform?—Experience and practice.

1748. How could you obtain that amongst the general lieutenants of the service?—They would, I imagine, if they knew that they would be liable to be called upon to perform the duties, qualify themselves for them, upon the chance of being called; but it should not follow that because any particular man was the navigating officer on one ship, he should necessarily be the navigating officer in another ship. I would make any man liable to be called upon to do the duty.

1749. Do you think the duties would be as well performed then as they are at present?—Yes, I think they would.

1750. Then where is the value of experience?—I think I might answer that question by saying that when a man first takes charge of a ship as a master it is very little experience that he has had.

1751. They are generally very small ships, are they not, of which a man first takes charge as master?—As a rule, but no matter what sized ship he is in, if the master gets sick, the second master is looked upon as the person to navigate the ship, without regard to her size. Certainly they were small ships, then, compared with what we have now-a-days; but a second master, I should imagine, would have even less reason to have confidence in himself than the lieutenant, from the nature of his duties, previous to his being master, being constantly below.

1752. Are you satisfied or dissatisfied at this present moment with your position as a master?—Dissatisfied.

1753. As the master's position has been considerably improved of late years as to pay and half-pay, has the dissatisfaction been created in yourself by your treatment in the service, or from the badness of your prospect of further advancement?—Not from my treatment in the service, but from the utter blank that there seems to be of any chance of advancement, no matter how you may distinguish yourself, or what you may do. I can say that I have never been badly treated in the service.

1754. Would you now look upon advancement in rank as a reward?—Undoubtedly, and an opening to any honour which may be accorded to any other officer in the service.

1755. But you think that even if you got advancement in rank you would also take your present pay with you?—Yes, I think so.

1756. Then you would look for double compensation; you would look for compensation in rank, and to carry the pay with it?—No; you misunderstand me. What I look for is, that, having served a much longer period in the junior grades than I should have done had I gone up the service in the other way, through the regular channel, my pay should not be reduced. If I had entered the service in the other executive branch, and gone up in the regular course of events, I should have been promoted earlier. Possibly, instead of waiting till I was 30, when I was promoted to master, I should have been promoted to lieutenant when I was perhaps 22 or 23.

1757. But during all that time you were earning more pay than you would have had as an executive, were you not?—That was very trifling, during the greater part of my service; the change with regard to pay came afterwards.

1758. During the time that you were in China in the "Coromandel," to speak just in round numbers, what was your ship worth to you a year, including pay, pilotage, and store-money?—I was only

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only in her for one year; it was about 140 *l.* a year altogether.

1759. Was she commanded by a lieutenant?—Yes.

1760. And he was earning 200 *l.*?—Yes.

1761. Do you consider that a master's duties at the present day enable him to acquire the habit of disciplining men and commanding them?—I do, for in the vessel I have just left, in addition to doing my duties as master of the ship, I had to attend to the interior discipline and economy as commanding officer of the ship. I refer to the "Sea Mew."

1762. Had you been otherwise placed in an ordinary man-of-war, taking the general duties of a master on board ship, do you consider that those duties would have enabled you to acquire habits and duties of discipline and command?—Yes. I do not mean to say that a master's duties especially would enable him to acquire those habits, but his knowledge of the service would enable him to do so. I do not say that from his duties he would get that knowledge; but I think a man must be very much wanting in common observation if he would not be able to see how things went on generally.

1763. Do not many masters arrive at the rank of master without ever having had charge of a watch?—Many, I believe.

1764. Or scarcely having ever given an order in any capacity?—No; I should think not, because you have, generally speaking, as the second master, even in charge of the lower deck, to give a considerable amount of orders, and you have a good deal of the discipline and interior economy of the ship to look out for on the lower deck of the ship, even as mate of the deck.

1765. Without having given any orders as to the manœuvring of the ship?—Very many masters have often arrived at masters without having been called upon to perform the duties of officers of the watch.

1766. How could such an officer be fitted to become the commanding officer of the ship?—Although he may not have been called upon to take charge of a watch, he may have kept a watch without being in actual charge of it; and it would be no fault of his, because he was not called upon to perform the duties. He might feel himself competent without ever having been called upon to perform them, because he must have passed an examination to arrive at the rank of master, and must have been pronounced competent by several competent judges.

1767. Do you think that the class generally object to the name of master?—I do, decidedly.

1768. What title would you then suggest as a substitute?—That is a thing that never struck me, but I should suggest that if they did not abolish the class they should call them either "sailing lieutenants," or something like that; something to take away that dreadful name that we can never explain to people.

1769. In case of an abolition of the class, have you thought there is a chance of the lieutenants strongly objecting to an amalgamation of the lists, as being detrimental to their material interests?—I think not, as a general rule; but I have never considered the question, and I have had no opportunity of associating, since this question has been mooted, with lieutenants, so as to find out their opinions; but I should imagine that the influx of masters would be so slight into the general number of lieutenants on the list, that it would not be felt as a great hardship. That is only my own idea; I have had no means of collecting the opinions of any lieutenants with whom I am acquainted.

1770. As a personal question, would you like to see the class abolished, and the masters continue to remain and serve on a separate list, without additional executive rank, or an alteration of the title, until the entire class became extinct by retirement or death?—No; I should consider it would give very little, if any, satisfaction to masters generally.

[The Witness withdrew.

JAMES ROBERTSON, Esq., R.N., Examined.

J. Robertson, Esq., R.N.

1771. WHAT is your rank and seniority in Her Majesty's Navy?—A master of three months' standing.

1772. Will you state shortly your length of service as second master and master, and also the names of the ships and stations on which you have served?—I was masters' assistant in the "Queen," as my first ship. I was in the Black Sea three years. I was then appointed masters' assistant of the "Satellite," serving on the Pacific station. After I passed for second master I was appointed by Admiral Sir Robert Baynes to his own ship the "Ganges;" served in her for seven months. He then appointed me as acting master of the "Vixen" to navigate her home; and a death vacancy having fallen a few days after the "Vixen" had sailed, he nominated me to it. I brought her home, and after paying off, was appointed second master to the "Marlborough." Served in her seven months, and was then appointed acting master to the "Scourge," which the Admiralty confirmed. After going to Candia, being absent six weeks, returned to Malta where I found my commission. Navigated the "Scourge" home and was paid off in her.

1773. Are you aware that a feeling of discontent exists among the masters?—I have heard them often complain of their not having sufficient authority when the ship is under weigh, and of their continually being in collision with the officer of the watch, and complaining about altering the ship's position. I have not had much experience in that way myself, because I have never had any interference in that way; but in the ships which I first was in I have often heard the master in hot water with the officer of the watch, and complaining to the captain about it.

1774. There has been no change of late years with regard to the master's position, as compared with that of the officer of the watch, has there?—I have observed none.

1775. Do you believe that the masters are contented with their improved rates of pay and half-pay?—I have never thought of it, and never spoken about it with the masters.

1776. Have you considered whether there is any feasible plan of removing whatever discontent may now exist?—Yes; I think that a master wants more authority on board ship. I think it would decrease the discontent greatly if he had it when the ship is under weigh.

1777. Do you mean that you think it would

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be better if the master had the rank of commander, and superior to that of lieutenant?—He should have superior rank to the officer of the watch of the ship which he is navigating.

1778. That is to say, that he should be able to give orders to the officers of the watch?—Yes; that he should be able to give orders to the officer of the watch. If the captain should happen to be off deck, or where he could not find him, and the master wished to alter the ship's position, he should be able to order the officer of the watch at once to alter the course, and he could tell the captain afterwards. As the case is now, he is obliged always to speak to the captain first, and the captain has to give directions to the officer of the watch to alter the course.

1779. If the master suggests to the officer of the watch, or expresses a wish to alter the course upon an emergency, do not you suppose that the officer of the watch would attend to it?—If he thinks proper at the time he may do so, but if he does not see the necessity of doing so, he will not do it, unless he gets directions from the captain, and unless he really sees the danger. The master is supposed to know that a shoal is in such and such a place, but it cannot be seen; he wants to alter the ship's course, and the officer of the watch does not know that the shoal is there, because he has not been looking at the chart, and does not know of the existence of the shoal, and he will not alter his course, unless he gets orders from the captain. I have often, when I first joined the service, seen that happen; that the master has asked the officer of the watch to alter the course, and the officer has said, "I have not got orders from the captain to do so, and I will not do it."

1780. Are you talking now of cases in which there was danger, and reason for an immediate alteration of the course?—There was not really very great danger, but the master wished to alter the course half a point; he was not certain that he was far enough off, and he wanted to do so, and the captain happened to be asleep, and he said that he did not wish to wake him, his captain had just laid down, and he did not want to call him. Then of course he could tell the captain afterwards, but the officer of the watch would not do it till he had called the captain.

1781. The master navigates the ship under the captain's superintendence and directions, does he not?—Yes. He cannot do anything without the captain's permission; he places the ship's position off on the chart, and suggests the course to the captain, and the captain decides whether it is proper or not.

1782. Do you think it desirable that the master should be able to alter the course if he likes without informing the captain?—If he sees danger at the time he should be able to alter the course, and tell the captain immediately afterwards. In the event of danger the master should have authority to alter the position of the ship, and then inform the captain at once that he has done so, but not in any other case.

1783. In the event of danger if the master informed the officer of the watch of his wish to alter the course, would it not be attended to?—It depends entirely on the officer of the watch that he is dealing with.

1784. Do you not think that the officer of the watch would risk his commission in not attending to the master in a case of that sort?—He might say to the master, "I will tell the captain first," or, "I will send to the captain and tell him, but I cannot alter the course without his permission; the captain gave me the course so long ago, and I cannot alter that course unless I get his authority to do so."

1785. Do you recommend, then, that a young master should be superior to a lieutenant?—No; not by his standing in the service; but when a ship is in pilot waters then he should have a certain authority over the officer of the watch; he should have the ship in his own power if the captain is not present.

1786. What practice had you in navigating a ship before you were made a master?—I navigated the "Vixen" from Valparaiso to England, as acting master, for five months. Two months I did master's duty in the "Marlborough," navigated from Naples to Messina, and from thence to Malta, and afterwards as acting master in the "Scourge."

1787. What duties did you perform before that?—I had charge of the lower deck and hold in the "Marlborough," and the same in the "Ganges," and the same in the "Queen." I was only two months in the service when I was placed in charge of the holds. I held that berth for three years; the whole time the ship was in commission; and I performed the same duties in the "Marlborough" and the "Ganges" all the time I was in them.

1788. What part did you take in the navigation?—I used to send my day's work to the captain every day, and occasionally, if my duty allowed me, I used to attend the naval instructor.

1789. Used you to take sights?—Yes; I took sights every day at sea for longitude as well as latitude, and I sent my work in to the captain.

1790. Were you ever sent for to make yourself acquainted with harbours that you were approaching or going into?—I never was, until I was in the "Marlborough." I was sent for then by Mr. Luke to remain on deck, and he spoke to the admiral, and got me to keep watch occasionally at sea every other day during the week. Myself and another second master took it in turns to keep watch occasionally.

1791. Had you, as master's assistant or second master, any practice in sounding or surveying harbours?—I had a little in the "Satellite" at Vancouver's Island. I was away there for five weeks in charge of the pinnace. It was not surveying exactly; it was preparing stations for the "Plumper," which was coming up there to survey.

1792. Was that under the direction of a master?—No; under the direction of a lieutenant.

1793. Have you looked upon the masters in the large ships in which you have served as able and efficient officers?—Yes.

1794. Do you think that our ships in general are well navigated?—With regard to all the ships that I have been in, I have always found that the masters have made very good landfalls.

1795. Do you think that it would be for the good of the service that the classes of masters, second masters, and masters' assistants should be done away with, as a separate branch of the service?—I should think it would be so.

1796. How many years have you served?—I have been in the service eight years and six months.

1797. You have got on then nearly as quickly as is possible?—Yes; as quickly as the service would allow me.

1798. Are you aware of any feeling of discontent or soreness among the masters with regard to their not having relative rank equal to the civilians?—They are continually in hot water with the civilians on board ships with regard to their rank. A case happened not long ago at Rio, where the surgeon wanted the master to pay him the same respect as he would to a captain on coming on board ship, and the state of things became so unpleasant that the master was obliged to leave the ship. He had been very unwell at the time, and I think he was shortly after taken ill with the yellow fever.

1799. Had he to leave the ship on account of this quarrel?—He was not comfortable in his mess. The surgeon and himself were the only two officers in the ship, and the master was the commanding officer.

1800. Since that has occurred it has been distinctly laid down, has it not, that the master in such a case shall assume the command?—That is so now; but that was shortly after the new uniform came out.

1801. You stated that when you were in the "Ganges" you did your duty in the holds?—On the lower deck and in the holds.

1802. Did you ever keep watch in the "Ganges"?—I did, for a short time.

1803. How long were you on board?—I was on board seven months. I kept watch for about a month on board.

1804. While you were second master, how long did you keep watch?—Two months altogether out of two years' time.

1805. And from the "Ganges" you were put at once acting master in the "Vixen"?—Yes.

1806. You brought her through the Straits of Magellan to England, did you not?—Yes.

1807. Had you had any experience by which to gain your knowledge of navigation?—I learned my navigation at Greenwich.

1808. Did you gain your admission into the service from being what is called a "prize boy" at Greenwich?—No, I did not.

1809. How happened you, then, to be appointed to the service?—My father got me into it by some interest.

1810. Still you had a good education at Greenwich, which you have found to be of use to you since?—Yes.

1811. You have stated, have you not, that the doing away with the class of masters as a separate class had never been a subject of discussion in the midshipmen's berth or in the gun-room mess?—No; I have never heard that discussed much. My messmates, being midshipmen, did not take any interest in the master's position.

1812. Do you think that the navigation of the ship being confined generally to a special class of officers, has a tendency to make other officers indifferent to it?—Yes.

1813. Do you consider that it would be for the benefit of the service that all officers should be enabled to navigate their ships?—Yes.

1814. Can that be done without actually taking the responsibility of navigating the ship upon themselves?—It could be, if they sent their work as well as the result in to the captain, the same as masters' assistants and second masters.

1815. Did the captain of the "Vixen" take much interest in the navigation of the ship?—Yes, he did. He had previously navigated the ship himself from Callao down to Valparaiso. The master was sick on board the ship.

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1816. Who was the commander?—Commander Richards.

1817. Did you keep watch as the officer of the watch or as mate?—As mate of the watch on the forecastle. I never kept watch as officer of the watch.

1818. On entering the Straits of Magellan in the "Vixen," did you feel perfect confidence in yourself in taking that vessel through?—Yes; I had been through before.

1819. In charge of a vessel?—No; I had passed through in the "Satellite" screw ship.

1820. In bringing the "Vixen" through, were you materially assisted by the commander or any other officer?—The commander was continually on deck with me.

1821. You have passed for the Channel pilotage, of course?—Yes.

1822. Have you ever seen the Downs?—Yes.

1823. In what ship were you there?—I came through in the "Scourge" the other day, and I came through with the "Vixen" a twelvemonth ago, and I had been through before in passage steamers.

1824. Those cases which you alluded to, of the officer of the watch declining to take the suggestions of the master, are things which you think may occur; but can you instance one?—I cannot bring them exactly to my recollection, but I remember that such things have happened.

1825. Have you ever witnessed it yourself?—No; I never witnessed it myself, but I have heard it complained of afterwards.

1826. If the two classes, the masters and the executive branch, were amalgamated, at this present moment, what position would you consider yourself entitled to?—To take the seniority, and the same standing as lieutenant as I have as master.

1827. Are you on half-pay at present at your own desire?—Not exactly; my ship was paid off three weeks ago.

1828. Would you avail yourself of the College education at the present moment if you were allowed to do so?—Certainly, I would do so.

1829. You had three masters' assistants, had you not, in the "Scourge"?—Yes.

1830. What duty had they to perform?—They kept watch constantly; we had no other officers in the ship; no midshipmen and no cadets; only the three masters' assistants.

1831. Did they keep watch as officers of the watch?—No; as midshipmen of the watch.

1832. Previously to taking charge of the "Vixen," had you ever rated a chronometer?—No, except in the school at Greenwich.

1833. Whose sons were the boys generally that constituted the upper school at Greenwich in your day?—The sons of lieutenants, and other ward-room officers; aud I have known one or two warrant officers' sons.

1834. Did you consider that there existed a feeling in the upper school of superiority over the lower school, when you were there?—Yes; we never associated with the lower school.

1835. From what cause did that feeling arise?—We were kept separate from the lower school by the order of the superintendent, and were not allowed in their playground.

1836. Did that feeling arise from a conviction that

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that you were in a higher social position, or that your parents were?—No.

1837. If you had been let alone you would have associated with them, but the orders of the establishment were against it?—Just so.

1838. You associated in school, did you not?—No; we were kept in separate schools; there were separate classes.

1839. Was the education the same?—I think it was nearly the same.

1840. Were any masters assistants' nominations given to the lower school?—I have not known of any; they generally went to the merchant service. All the navigation class went from the upper school.

1841. Do you think that the class generally object to the name of "master"?—Yes.

1842. What title would you suggest, in case it were altered?—"Navigating lieutenant," or "sub-commander."

1843. As a personal question, would you like to see the class abolished, and the masters continue to remain and serve on a separate list, as they are at present, till the entire class became extinct by retirement, or not?—No; I should wish them to be at once placed on the list of lieutenants, and take their seniority as they have standing as masters, but with increase of pay.

1844. In case of abolition, have you ever thought that there is a chance of the lieutenants strongly objecting to the amalgamation of the lists, as being detrimental to their material interests?—No, I never heard that discussed.

[The Witness withdrew.

[Adjourned to Monday next, at Twelve o'clock.

Monday, 3d March 1862.

PRESENT:

Rear-Admiral the Hon. C. G. J. B. Elliot, C.B.	Captain George Goldsmith, C.B.
Captain Washington, F.R.S.	Captain Charles Henry May.
	Commander Cornelius T. A. Noddall.

Rear-Admiral the Hon. CHARLES G. J. B. ELLIOT, C.B., in the Chair.

Rear-Admiral Sir LEWIS T. JONES, K.C.B., Examined.

Rear-Admiral Sir *L. T. Jones,* K.C.B.

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1845. ARE you aware that discontent exists among the masters in the Royal Navy, caused by the feeling that they do not hold sufficient relative rank with the other officers?—Of my own knowledge I do not know that; but it is merely from public rumour. No instance has come under my own observation.

1846. Do you think they have reason for that discontent on the ground of relative rank?—I think it desirable for the benefit of the service that in active service they should retain their present position without an increase of rank.

1847. Have you ever heard that the masters are discontented with their designation or title of master?—I have never heard it objected to.

1848. The masters appear to have advantages over their equals in the executive branch with respect to pay and half-pay; do you look upon those advantages as having been given as in some degree a set-off against the limit placed upon their rank?—I think it was decidedly with that view, as a compensation for their want of rank.

1842. In the petition presented by the masters to the Lords of the Admiralty, dated 29th November 1858, there is this paragraph: "Your petitioners both on service and socially, and especially when co-operating with foreign officers, experience considerable embarrassment from the want of relative rank with other executive officers of the same service, and also from their ambiguous title. The medical officers of the navy are in the enjoyment of certain definite gradations of rank, to which they receive substantive promotion for meritorious service, which rank is available, whether at sea or in hospitals or other Government establishments on shore, and renders them eligible for military distinctions conferred by the Sovereign. But your petitioners feel that until they have passed the age of 55 or 60 they can enjoy no accession of rank, relative or direct, and are excluded from the honours attendant upon good service; and that the advancement open to them at that late period of life is inseparable from retirement." Will you state whether you think that they have a just cause of complaint on that ground?—The masters at present have the rank of lieutenant, and after eight years' service they have the rank of major. I do not think it would be convenient for the service afloat to increase that rank; otherwise you make them senior to the lieutenants; and to give them rank senior to the lieutenants I do not think would work beneficially to the service.

1850. Do you see any objection to their obtaining rank with the civilians?—I think that you might very well give the officers who are in the position of master attendants of the victualling offices and dockyards, rank similar to the medical officers. Then it would not clash with the service, and in the same way when they retire you might give them similar rank.

1851. But do you think it is still desirable to keep them subordinate to the lieutenants?—I think there would be an inconvenience in giving them

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them rank over the lieutenants. The command of a ship very frequently devolves upon the lieutenant, and all the officers in the ship must be under his orders; and if you give the rank you must give the command also. I do not see how you can separate the rank and the command.

1852. You are aware, I presume, that master attendants now rank as commanders, and that on retiring they retire with the rank of post-captain?—Yes; but what I mean is, that I would give the same rank that the medical officers have, which is that of a colonel in the army, to those holding the position of master attendants of dockyards and those on the retired list.

1853. By the new Queen's Regulations, masters rank with lieutenants, according to the dates of their respective commissions; but in the details relating to the duties of the fleet, and to the discipline and interior economy of Her Majesty's ships, they are held to be subject to the authority of the lieutenants, of whatever seniority they may be. Do you think you could carry out that principle if the rank of senior master were still further advanced?—I think that that may prove inconvenient already, and I should not be disposed to go further until one has seen the working of it.

1854. Do you think it would be beneficial to Her Majesty's naval service in general that the classes of master, second master, and masters' assistants should be done away with as a separate branch of the service?—I should be very sorry to see the line of masters done away with. I think it imperative that the officer who has the charge of keeping the ship's reckoning should be retained in that office, not subject to frequent change. It is requisite that he should devote himself specially to that duty. The aptitude for piloting is not easily acquired; it requires steady nerve and confidence; hesitation is fatal to the successful performance of it. To acquire that habit, close application is requisite, and steady perseverance, and study of the tides, the appearance of the land through a haze, and of the special capabilities of the ship he may be serving in. I think for these reasons that it would be very inconvenient to do away with the office of master.

1855. Have the masters with whom you have served generally been men who have efficiently performed their duties?—Generally, certainly; but I have found a want of surveying knowledge among some masters, not from the want of will, but from their not having been taught it when young.

1856. The old masters are universally looked upon as a very deserving class of officers; do you think the young masters promise well to become their equals?—I think the old masters, from long experience and habit, have acquired those valuable qualities to which you allude, and that the young masters are hastily brought forward, and are not educated up to the requirements of the day. I think that the masters' assistants require to be kept in hand longer; they enter the service now at 14. I think they should be kept in training in the Channel until they are 17 at least, making themselves acquainted with the approaches and the soundings; and if a sailing ship could be granted for that purpose, under the command of a scientific surveying officer, they might be taught practical surveying, and they might be taught properly to make astronomical observations by night and by day, in hot weather and cold, and all the requirements of the service. I think that for want of further tuition the progress they make in the service is a chance thing; they are frequently called upon for boat duties and hold duties, and really, without any want of desire on their own part, they have not the opportunity of keeping up the scientific knowledge that they start with.

1857. Do not you think that up to the time of a masters' assistant passing the examination for second master, a midshipman who has served his time for lieutenant has had superior advantages in education with regard to seamanship and navigation?—I think, generally speaking, the lieutenant has superior acquirements to the master, at the time of passing; I mean he is generally more up in seamanship, and perhaps in navigation. I have lately met an exceedingly fine set of young men, good navigators, and in every way what the service should require of the young fellows, coming forward for examination as lieutenants, and particularly the youths in the "Chesapeake" and "Impérieuse," who were generally an exceedingly fine set of youths.

1858. Do you think it would answer, in the event of the class of masters being done away with, to bring up those sub-lieutenants and lieutenants as navigating officers, and oblige them to pass a certain examination, and, after a certain seniority, to navigate our ships?—Their present examination is quite sufficient to enable them to navigate a ship, with the exception of the pilotage. The duties and requirements from this point branch off; the masters' line specially to navigation and pilotage; the other to executive command, the management and control of masses of men.

1859. You look, do you not, to practice in that as the great point?—I think that if the position of master, or of any class occupying that position, is retained, it requires their attention to be specially directed to pilotage, and the habit of sketching, and taking observations on the land and the tides, and so on. I think that some of those young masters whom I have seen are, in point of seamanship and rigging, rather wanting, but the course of instruction that I suggest would, of course, include the manual and the practical.

1860. But, as a rule, latterly you look upon the masters' assistants and second masters as having been too much employed below, do you not?—I think it occurs frequently that they are not kept sufficiently on deck; and I have even found a disinclination on their part to come on deck. I have generally made a point of having them on deck in going in and out of harbour; but it required an effort to get them to do it.

1861. The second masters in the gunboats in China had opportunities to attain knowledge in pilotage, had they not?—Yes; generally speaking, they were an exceedingly active set of young fellows in the gunboats, who readily acquired the knowledge of piloting.

1862. Do you look upon our gunboats as a good school for second masters?—Only for piloting purposes. In China they had no opportunity of doing anything else; they could hardly get time to write the log out, and keep the store account.

1863. And it was very desirable, I presume, that the lieutenant should have some assistant for pilotage?—I think so; and at sea, in making their passages, they have the same opportunities of

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of confirming their knowledge in navigation as in any other vessel, and perhaps more so, because they must pay attention to their duties; but in the gunboats, as you are aware, there is little to do with the rigging, and not much seamanship.

1864. Do not you think that having masters on board our ships, whose special duty it is to navigate them, in some degree tends to make the sub-lieutenants and lieutenants careless upon the subjects of navigation and pilotage?—Yes; I think they do not take the same interest in it that they would do if they were responsible for the position of the ship, but the sub-lieutenant and lieutenant are kept fully employed.

1865. If one of the lieutenants had the navigation instead of the master, do not you think that the commanders and captains generally would be more at home in the matter of navigation and pilotage than they are now?—Yes, decidedly. They would be obliged to keep up their practice more than they do at present; but it is not so much the navigation that is of importance as the pilotage, which is, I think, the reason that makes it desirable to retain officers in the special position in which the masters now are, whose duties are a separate and distinct study.

1866. Do you think that the responsibility of navigation should be thrown more upon the captain than it is now?—I think that the captain is entirely responsible for the navigation at present, and therefore I do not see that any alteration is required. The master brings the reckoning to the captain, and if he has any doubt about it, it would be corrected; or if he has any doubt of the ability of the master to keep a reckoning, there would be other checks upon him. It is very seldom, in a frigate, that there are not half a dozen observations made every day for the time and for the latitude, as well as for the variation. The course is suggested by the master, laid down on the chart and approved by his captain, or altered, if he thinks it advisable, and so the captain becomes responsible. It then becomes an important part of the master's duty to see that the course ordered be correctly steered, that the compasses are in good order, the logship line and glasses, &c., correct.

1867. The designation of "master" being so generally disapproved of by the officers of that class, could that of "navigating officer" be substituted in lieu of it without any injury to the service?—There is no reason whatever, that I can see, why they should not be called "navigating officers," if they prefer that title.

1868. If giving them the rank of navigating officers allowed them to take the precedence of lieutenants by seniority when on service out of their ships, as in the staff appointments of the army, would that be prejudicial or advantageous to the service, in your opinion?—I think it might be prejudicial; it might lead to great confusion; the clashing on dockyard duty might occur at once.

1869. In case it should be considered unadvisable to abolish the class of masters, what measures would you propose for the removal of the discontent now stated to exist amongst them?—The discontent appears to be confined to rank and title. The title could be remedied, at their own request, by calling them "navigating officers." Then, with regard to the question of rank, I have suggested that they should be put on the same terms as medical officers when they retire, or when they hold those positions in the dockyard; and the same effect would be attained by giving them the rank of master of the fleet.

1870. But you are aware that the master of the fleet has only temporary rank?—Yes; but I think the extreme value of the masters to the service is, that they should not be in a position to interfere with the executive duty of the ship when there is a a lieutenant present. Without any disparagement to the masters, I should say that one-half of them are not in the habit of carrying on the duty of an executive officer, and it would be injurious to the men that they should be put in that position. A lieutenant is trained up specially for that purpose, and is more in the habit of handling men than the master. No doubt there are very many masters quite as capable as lieutenants, but the exception might be inconvenient.

1871. It is chiefly whilst serving that the masters feel this disproportion of rank. The plan which you allude to would only come in force when they were in a measure retired from the active duties of the service. It is when they are young and in the prime of life, that they feel the want of this superior rank. Can you see any way of giving them promotion or superior rank whilst they are serving?—You can only give them superior rank by putting down another class of officers, which I think would be inconvenient to the service. They rank now, day for day, with a lieutenant; and to give them any increase of rank would make them senior to all the lieutenants, and I think it would be very inconvenient to the service to have two commanding officers.

1872. In the event of superior rank being given to the masters, do you see any reason why an extension of Article 2, page 27, of the Queen's Regulations, should not equally well prevent any clashing between the lieutenant and the master, supposing the old master's rank was raised?—If I am to understand the question implying that the rank of the masters should be raised, subject to the same regulations, I think I answered that before, by stating that I should prefer waiting to see how this new regulation worked, whether there is any inconvenience experienced from it.

1873. The surgeons, paymasters, and engineers now achieve a rank equal to commander in the Royal Navy, and lieutenant-colonel in the army, after completing 15 years' seniority, and enjoy all the civil advantages appertaining to that rank. The masters complain that they cannot attain this; and having always been those officers' equals, and indeed their seniors, are they not still deserving of similar consideration?—I think the masters are fairly entitled to similar rank and social position to that of the officers quoted, surgeons, paymasters, and engineers, and to all the advantages and retiring pensions which those officers enjoy; but I think it would be exceedingly inconvenient to give them rank which should interfere with the important duties which they have to attend to, both at sea and in harbour, of navigating and acquiring a knowledge of pilotage, which I look upon as more important now than it ever was.

1874. Such a step would place the lieutenants of 15 years' seniority at a disadvantage in comparison with masters. Do you think the lieutenants would look on this as a grievance, notwithstanding the fact that the lieutenants have the highest ranks of the service open to them?—No; I do not think that a lieutenant ought to feel that as a grievance, because in the one case it

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it is the highest position the officer alluded to can get; whereas, a lieutenant has the higher ranks of the service open to him.

1875. Do you think a lieutenant would have no right to complain?—With regard to granting retiring rank and allowances. I should say not; for it must be recollected that it is only those officers who have performed long and faithful services, and who have done their work exceedingly well, that can be so rewarded. They cannot acquire the position without long and faithful service at sea.

1876. The pay rises according to the service, but the rank merely by seniority?—I do not see how you can withhold from a master any retiring advantages which you have given to the civilian officers, the paymaster, and the engineer.

1877. Do you think that the masters themselves, if they attained advanced civil rank, would be satisfied with being below the lieutenants in active service?—I think the position of a master is so extremely valuable to the service, as it is at present, that it would be very inconvenient to give him rank above the lieutenants in command of a ship. His great value is in being left in an undisturbed possession, and attending solely to the duty of navigation, and looking after the stores of the ship.

1878. The master of the Royal yacht messes with an inspector of machinery, an inspector of hospitals, a surgeon, and the engineer in that vessel; and as he is such a responsible officer on board, do you not think that his position ought to be improved; that is to say, that he should not be junior to those officers?—That would apply to every wardroom mess in commission; the medical officer being generally next to the commander in social rank.

1879. The masters of several line-of-battle ships and heavy frigates at this moment, are very young officers, many of them of only six years' standing; do you not think that a lieutenant who had devoted his attention to pilotage and navigation, could have acquired equal proficiency with those men?—There can be no doubt of it; but it would have been taking them away from their executive duties to have given them such a charge. I have no doubt there are very many lieutenants in the list who could immediately qualify themselves for masters, if it were open to them. I believe there are lieutenants on the list who see little chance of promotion, and therefore would be disposed to try the master's line, with a view of the prizes open to that class.

1880. Do you think that it is desirable that that course should be open to them?—It might be tried as an experiment. It is, of course, merely an opinion of mine; but I think that there are lieutenants in that position who, in preference to going off on the coast guard, would try their fortune in the other line.

1881. But they would not possess the knowledge of pilotage which is so highly desirable?—They could not, of course, occupy that position without passing an examination. Pilotage in a great measure is a peculiar talent, and on the lieutenants' list there are very many who have this aptitude; one man sees a port, and takes the whole of it in at once, and never gets his landmarks wrong; the charts and directions are generally so good that they have only to know the points, and the difficulty is overcome.

1882. Would it be desirable that a superior rank should be given to the masters in command of store ships or troop ships, as a brevet rank, whilst holding that position?—Yes; I think it would be desirable to give them the rank of commander, while so employed.

1883. A scheme has been proposed by Commander Macdonald, the master attendant at Woolwich, accompanied by a letter in these terms:—"Knowing how desirous the present Board of Admiralty are to promote the interests and well-being of all classes of officers, consistent with the best interests of the public service, has induced me, at the solicitation of many of the masters of the Royal Navy, to draw up a scheme, which I beg leave, with all respect, to submit, through you, for their Lordships' consideration, and with the view of assisting both the Board, and, at the same time, a highly useful and deserving class of officers. I have no other motive than to earnestly and sincerely promote harmony and a proper feeling, so essential to the well-working of the service. It cannot be disputed that the duties of the master are strictly executive, and subjecting them to every exposure by night and day to which the naval service is liable. The late recognition of services of the junior officers in the medical and paymaster's departments, who have been decorated with the Third Class of the Most Honourable Order of the Bath, while the masters' services have been passed over, although officially described as 'daring,' 'arduous,' and highly 'meritorious,' thus rendering their position in the service extremely galling, and a pointed depreciation of the class, and highly detrimental to the profession, and they cannot rest contented under such exclusion while a fair share of honours and promotion is justly bestowed on others. The proposed accompanying scheme, if adopted, would render it unnecessary in future to promote masters out of their proper sphere and especial line of duty; it would also remove the necessity of frequently petitioning from time to time, setting forth their unsatisfactory position, and thus place them on an equality with other officers in the naval service. If this plan were fairly carried out, I am of opinion it would encourage a spirit of rivalry and competition, and prove highly beneficial to the service, and would not, in the slightest degree, infringe on or effect the other executive officers in the execution of their especial line of duty, but it would elevate the social standing (so much needed) of the masters; it would also be an inducement for officers to serve in sea-going ships, instead of the contrary. Many young officers now serving in the navy dependent on their own exertions, and without interest, would qualify for this branch of the service, because promotion is open to them after a certain sea servitude, and would render it unnecessary to look to the merchant service for candidates. The designation of master and pilot is most undignified and obnoxious, and militates to the prejudice of a respectable and improving class of officers. The appellation is so closely associated with colliers and billy-boys, pilots and fishermen, that we cannot be surprised at foreigners treating this class of officers unlike gentlemen; and that want of consideration and respect so begrudgingly exhibited by our own countrymen is not calculated to soothe and pacify; for instance, look at the humiliating and degrading position and treatment by the Russians of the master of the 'Tiger,' when compared with his messmates, on the occasion of the officers and crew of that vessel being made prisoners of war. The

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1906. You have always taken considerable interest in the navigation of ships yourself, have you not?—I cannot say that I have practically assisted; I may say that, perhaps latterly, I have not taken as much part in it as I ought, but of course I have always overlooked the work.

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1910. Taking the average of the masters, in 21 ships-of-the line and two large iron ships, the average promotion was of 1851; were you aware of that?—I was not aware of it.

1911. Do you look upon the education and the bringing up of the masters' assistants and second masters as faulty?—It depends so much upon the master of the ship, that, perhaps, it may be considered faulty, because, if the master does not pay sufficient attention, they do not get sufficient instruction.

1912. Where have you generally seen the masters' assistants and second masters performing their duties?—Second masters I have been in the habit of seeing constantly assisting the master; and also of late I must say, that I have seen great attention paid to the masters' assistants, they being obliged to attend the master upon all occasions.

1913. Have the second masters been stationed below?—Yes; their duty has generally been in the hold.

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1915. Within the last few years, do you think that more attention has been paid in that respect to masters' assistants?—As far as has come under my observation, I should say it has been so; but I am not at all aware that it is general.

1916. They were formerly very much below, were they not?—Yes; decidedly.

1917. Do not you think that the general education of a midshipman till he serves his time for lieutenant, is better than that of a master's assistant till he serves his time for second master, as regards seamanship and navigation?—I think it has been precisely the same of late; it is certainly no better. But I may add, that from the very fact of this officer knowing that he is to be brought up to a special duty, he has, in my experience, always paid more attention to those duties than the midshipmen have done. I know that in the last few instances that I could mention, I could trust the masters' assistants' reckoning when I could not have trusted any of the naval cadets.

1918. A midshipman who has just passed his examination for lieutenant is much on a par, is he not, with a master's assistant who has just passed for second master?—I should think very much the same in point of opportunity of acquiring a knowledge of his profession.

1919. Do you think that with the system of instruction for navigation and pilotage you could bring up the sub-lieutenants and lieutenants to take the place of masters, and that they would be as serviceable?—I have answered that before; I think not. I think an officer, whose every endeavour is directed to leave the rank which he is holding as soon as possible, will not pay so much attention to those special duties as if he had different views and different aims in the profession. I think it is the result of the progress of civilization in all professions to separate employments; it certainly is an axiom of political economy that the division of labour improves manufactures.

1919*a*. If a premium were held out to those young officers in the shape of pay, and even of promotion, to remain a certain time as navigating officers, do you think that might answer?—I think that then their general duties would be neglected. The duty that it is most difficult at this moment to get a lieutenant to perform is perhaps his principal duty, namely, paying attention to the men of his division, and that he must entirely neglect if he have the other class of duties to perform.

1920. If a lieutenant who had passed certain examinations were appointed to do the special duties now done by the master, and not to do the lieutenant's duties at all, do not you think that that might answer?—That would appear to me to be

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1923. Do not you think that to a certain extent having a special class makes the officers of the other executive branch, the sub-lieutenants and lieutenants, to a certain degree careless with regard to the navigation and pilotage of the ship?—That is quite possible, no doubt; but then certainly the captain is armed with sufficient authority to see that they do pay some ostensible attention, at all events, to the subject. Perhaps I may be allowed to remark, that when officers have had the responsibility thrown upon them, for instance, when going away in prizes, of navigating their own vessels, they generally have suceeeded in doing that tolerably well.

1924. You recommend, do you not, that the civil rank of the senior masters should be increased?—I think certainly it ought to be. Seeing that the civil branch has been advanced, I think it is very unfair that the masters should not be put upon the same footing.

1925. If masters of fifteen years' seniority were allowed to rank next above the staff surgeons, they would be restored to their former relative position as regards civilian officers, would they not?—Yes.

1926. Such a step would place the lieutenants of fifteen years' seniority at a disadvantage, in comparison with the masters. Do you think that the lieutenants would look upon this as a grievance, notwithstanding the fact that lieutenants have the highest ranks of the service open to them?—They might do so, but I do not think it would be a very great grievance; however, that I should think might be also a matter of arrangement, and it might easily be obviated.

1927. You have stated, have you not, that you consider that the captain is responsible for the navigation of the ship?—Yes.

1928. If he is to be responsible, should he not have every opportunity of learning navigation?—I do not think he is at all deprived of any opportunity. I think he has every opportunity of learning it; but it is certainly not his only duty; and considering that he has such able assistants, as I have generally found the masters to be, I think it is a duty which need employ less of his time than any other.

1929. The captain is expected to have a full knowledge of gunnery and so on, is he not?—I doubt whether many captains could pass a competitive examination in gunnery, but I think a general knowledge is what you look for from officers when they reach that rank.

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1931. Probably not; but if lieutenants had to do the duty now done by the masters, many more of them would qualify for it than do at present, would they not?—By my former evidence it would appear to be my opinion that they would not gain in efficiency as lieutenants. They must acquire a good deal of that knowledge to the neglect of the practice and at the sacrifice of their general duty. My impression is that it is the constant practice of the master that makes him so perfect; and I am quite certain, when I think not merely of the navigation but of the pilotage, which I have seen the master of the "Havannah" undertake from day to day, sitting on the foretop-sail yard among the coral reefs in the Pacific, where we had no charts whatever, that if I had had only our lieutenants to trust to, I could not possibly have done the duty. It was from the constant practice that the master had in that particular that I felt thorough confidence in his practical acquaintance with the appearance of the water, the shoals, the coral reefs, and so on; and I must say I often was astonished at the wonderful dexterity and knowledge of the business of Mr. Hilliard, the master to whom I am referring, who is now at Sheerness, in the steam reserve.

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1939. But what would be the objection to allowing young lieutenants to volunteer for those duties, who feel their aptitude for it, and letting them graft this speciality upon their previous good education?—I think that a lieutenant, if he has any ambition whatever, is anxious to leave that rank as soon as possible; he has not the same aims; but there are other prizes held out to masters which I should willingly see increased.

1940. Unfortunately the average service of a lieutenant is about 10 years. A few who have interest are able to get on much faster, but the average servitude of a lieutenant is 10 years. That being the case, why might not those officers who have no prospect of immediate promotion do the duties of navigating officers?—I think I mentioned before that the youngest master I have seen in a line-of-battle ship was Mr. Marsh, under my own command; and, upon reference to the Navy List, we find he is only a 10 years' master. I believe that Mr. Marsh will be a more efficient man five years hence than he is now; whereas a lieutenant would only just be coming to anything like efficiency at the time he is promoted.

1941. But there is no reason why he should leave the service as soon as he is promoted; why should he not go as navigating commander into the ship to which he is promoted?—That I would answer as I answered the Honourable Chairman, that it is a distinction without a difference. The objection I have is that it is change without improvement, and I object strongly to that because it discredits all change that may bring improvement.

1942. But is not a change which gives an opportunity of selection from an area of 1,200 instead of 300 an advantage?—I should have no objection to any man volunteering for the position of master. It used to be the case. I have seen several mates in my young days accept the position of master, in preference to running the risk of moving very slowly up.

1943. Is it a change without a difference to select from the whole body of those who are educated as lieutenants, rather than from a particular class who appear to have had no special training?—No; but I imagine no person would be refused a master's warrant under those circumstances.

1944. You object to change, do you not?—Unless it brings improvement with it.

1945. You are aware, are you not, that masters were first appointed to ships of war as practically seamen and navigators, when all our ships were commanded by soldiers?—Yes.

1946. You are also aware that those who now rise to command, both in seamanship and navigation, and in other branches of the profession, are specially educated for the navy?—My own opinion is that the education of boys before they go into the navy, who are destined for the highest ranks of the navy, is far too special; that they do not receive sufficiently the education of an English gentleman; and I cannot conceive a greater evil to arise in the navy than that the education should be so special for the executive officers as should prevent the possibility of a captain or an admiral ever being a scholar.

1947. You are precisely carrying out what I wish to arrive at, though I may express myself improperly, and it was for the express purpose of having our navigating officers selected from that educated class that you have spoken of, by which educated class I do not mean a class specially trained for a sailor, but from the generally educated class from which you wish to see our navigating officers selected?—I have already said I should have no objection at all that they should adopt the special duties, if you are to have those special duties thoroughly well done.

1948. Do you consider that the navigation of a ship at sea occupies so much time that a lieutenant cannot perform that special duty, at the same time doing all his other duties equally well?—I do not think he would do them well, in general; it is clear that except in long voyages his attention to the navigation of the ship ought to be unremitting.

1949. But is it not the case that in a long voyage the greater part of the time the master has nothing to do?—According to his present duties, the master has to superintend a great many other departments as well as the navigation. He has the superintendence of the stores, and there are many other very essential duties of a master.

1950. Could not the commander of a line-of-battle ship and the boatswain, between them, or a warrant officer, manage the stores?—I should not think that the commander has any time to spare, with all the other duties he has to perform at present. I may perhaps mention that I have found that the master's duties are so unremitting that it has been exceedingly difficult to get a master to attend to a meteorological journal; and it has been proposed that the surgeon should be the officer to keep it.

1951. Do you consider that the second master and master's assistant might be removed from the duties of the hold and between decks, by the appointment of warrant officers to those duties?—I do not think there is any necessity for keeping them constantly doing the duties of the holds. I believe of late the practice has been, since the scarcity of what we call mates and sub-lieutenants, to appoint warrant officers for those duties; but at the same time the objection to that is, that you take boatswains and gunners away from their respective duties to do what does not exactly belong to them. If the system were continued, it is my opinion that there should be a separate class of petty officers. I disapproved very much, except that it was unavoidable, of the system of putting warrant officers upon the lower decks in line-of-battle ships. I think that duty ought to be done by an officer of higher rank, and who has greater authority; and since we have not had mates of the lower decks, or, in other words, sub-lieutenants, the duties of the lower decks have been worse done, and the discipline has been very much worse preserved.

1952. Since it has been admitted that discontent does exist amongst the masters, can you suggest any remedy for improving the position that those officers now hold, without clashing with the other executive branches?—I think I have said before that I would give rank equal to the civilians. I think I also said before that the difficulties which are expected to arise in consequence of the masters being either inferior or superior to the lieutenants in rank are imaginary, and I do not think they would clash at all.

1953. Then you consider that they might be kept

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a separate class?—My opinion is that the present system is the best one, with a view to getting these duties performed in the best possible manner, and that if you make any change your duties will not be so well performed as they are at this moment. I presume, but I do not know, that the masters themselves would be very sorry to be incorporated with the lieutenants, without some further arrangement; for, in the first place, the chances of the prizes that are held forth to masters, such as master attendantships, and so on, must be diminished in a very great degree.

1954. Are you aware that there are 14 master attendantships altogether?—Then, of course, it would be only 14 amongst 1,250 lieutenants. I may mention that that very remark was made to me a little more than a year ago by the late master of the "Victory," Mr. Parker, who had served with me in the "Monarch."

1955. Do you think that it would be desirable to give the masters who have the command of store-ships and troop-ships any addition to their rank?—I see no possible objection to it.

1956. What addition of rank would you suggest?—I should suggest, generally, that when a master is promoted, instead of promoting him to a lieutenant, he should be promoted directly to commander. I think that would be what a master has a fair right to expect, if he is promoted for particularly distinguished services; and in the same way I do not see why he should not have the rank of commander when in command of a ship.

1957. Would you prefer keeping them on separate lists?—Yes; with regard to those in command of store-ships, certainly, because it is a totally different service. The master that I was best acquainted with in command of a store-ship was a very old friend of mine, Mr. Cole, of the "Sapphire," who died in China, and in that case his crew signed articles, and were not under martial law, and consequently the service was a different one.

1958. To enable the younger members of the masters' line to have increased experience, do you think it would be desirable that they should be employed for a certain specified time in a vessel in the Channel, and on the coast of England generally?—I should think that would be advantageous; but after all, early responsibility appears to me to be the best training.

1959. The masters' class have about 14 superior situations open to them as master attendants. Do you think that they, as a class, hold as many of those appointments in comparison as the surgeons and the paymasters and engineers?—I am not aware; but what struck me with surprise when I came to look over the list of masters that I knew was this: I found that out of 20 there were 11 who had held such appointments. I do not refer only to master attendantships. In the case of Mr. Cole, he was made the commander of the "Sapphire," which was considered a better kind of appointment. Mr. Parker was the master of the "Victory," which was a harbour appointment, and so on; and Mr. Thomas is still master of the "Fisguard." But it is somewhat remarkable that out of 20 there are 11, including Mr. Evans of the compass department, more than half, who have succeeded to superior appointments.

1960. I will read you part of a scheme which proposes that there should be "staff captains—all masters having completed 20 years' full pay, sea time, if qualified for first and second rates, with permission to retire from the service. Staff commanders—masters having completed 15 years' full pay, sea time, if qualified for first and second rates. Staff lieutenants—masters under 15 years' full pay, sea time. Staff mates—second masters. Staff cadets—masters' assistants. Provided always, that no staff officer, while borne on the books of one of Her Majesty's ships, or employed on shore, or in any naval establishment on shore, shall be deemed superior in rank, although senior in respect of date of commission, to the officer appointed to command such ship, duty on shore, or any naval establishment, but such commanding officer shall at all times, and under all circumstances, be held to be superior in rank and precedence to every officer under his command." Do you think that a scheme of that nature could be carried out?—As to the mere change of title, it appears to me to be so childish and so frivolous that I do not think it is worth entertaining.

1961. With regard to masters over 15 years' full pay, sea time, if qualified for first and second rates, they are proposed to rank with commanders; do you approve of that suggestion?—I think that is perfectly just.

1962. And masters, having served 20 years' full pay, sea time, if qualified for first and second rates, with the rank of captain?—I would much rather give the masters substantial advantages, than merely a change of name, which is of very little consequence to them, that I can see.

1963. Do you think that the provision with which the scheme ends would answer; that is to say, although a master of 15 years' standing should rank as commander in general, as commander he should always be considered as subordinate to the officer in command of the ship?—I should think that would be requisite.

1964. Do you think it would be possible to have a scheme of that sort, which would be a deviation from the present state of things, where the master orders the subordinate lieutenants?—Yes; I should think so, because I am firmly convinced that the difficulties would prove to be imaginary of giving a master his proper rank. I mean the civil rank among military officers.

1965. Do you know how the rank of master is looked upon by officers in the French Navy. An argument I have heard used by French officers, more than once, has been that they imagined the power of a master to be superior to that of either commanders or lieutenants, and consequently that it would not work in their service.

1966. Have you had an opportunity of seeing masters' assistants who have come from Greenwich School, or from New Cross School?—I have seen several boys from Greenwich School, not from New Cross, and my opinion of them has been favourable; they have been very fine boys. But one of the sharpest boys I ever saw came from a proprietary school in the New-road, and he died the other day of fever on board some ship. He was the son of a master of a proprietary school, and he certainly came into the service very well educated, and well brought up for the service.

1967. Is there anything else you could suggest to the Committee upon the subject of the present inquiry?—No; I have nothing else that I would wish to suggest.

[The Witness withdrew.

Adjourned to Wednesday next, at
Twelve o'clock.

Wednesday, 5*th March* 1862.

PRESENT:

Rear Admiral the Hon. C. G. J. B. Elliot, C.B.
Captain Washington, F.R.S.
Captain George Goldsmith, C.B.
Captain Charles Henry May.
Commander Cornelius F. A. Noddall.

Rear-Admiral the Hon. CHARLES G. J. B. ELLIOT, C.B., in the Chair.

Rear-Admiral PETER RICHARDS, C.B.; Examined.

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1968. ARE you aware that discontent exists amongst the masters in the Royal Navy, caused by a feeling that they do not hold sufficient relative rank with other officers?—No; I have no direct knowledge of anything that amounts to discontent; I know that for a great length of time there has been an uncomfortable feeling among the masters about it.

1969. Do you think they have any reasonable grounds for that feeling?—That is a difficult question to answer. I must say, that by some it may be considered that they have reasonable grounds; and if there are reasonable grounds, unquestionably those grounds ought to be removed, in so far as they can be, without prejudice to the public service. I have always considered myself, from my earliest acquaintance with the Navy, that all classes of officers to whom high rank and command were denied were compensated by increased pay, increased retirement, and other advantages; and justice to the masters requires that if they have not enough in these points, their advantages should be enlarged.

1970. One point that they feel just now very much is, that they have not relative rank with the civilians; that some of the civilians have been raised in rank, and therefore the masters have, to a certain agree, been left behind. Do you think that they have any ground of complaint on that score?—That complicates the question very much indeed; the order by which that has been done has been issued since I have ceased to have anything to do with the active duties of the profession, and, therefore, I am not aware how that works in the case of the civilian officers, whether inconveniences are found to arise from it more than counterbalancing the advantages. But it occurs to me that there is a difference between the position of a master, and the position, we will suppose, of a surgeon or a paymaster. A purely civil officer cannot, by possibility, have any command; you may give him what rank you please, but he cannot have any command. But the master has, of course, and must have, a standing place in rank and command. Now, the question is, can you give him that which I see is attempted to be done in Article 2, p. 27, of the new "Queen's Regulations"? Can you safely give him higher rank without giving him command? In point of fact, can you place him on the higher step of the ladder as to rank, and an inferior one as to actual command?

1971. That is done to a certain extent, is it not, by the present instructions?—If it can be safely done to that extent, I do not see where you are to place the limit; but there may be a question whether, without experience, one can safely pronounce upon the thing going further.

1972. You look upon it as objectionable, do you not, that the masters should have superior command to their present position?—That presents a difficulty to my mind. Perhaps one would not go so far as to say that it is objectionable, because here is an attempt being made in these instructions, or is to be made. It is an essay; and one may, I think, say that it would perhaps be safe and wise to make that essay first before going any further, because it is very easy to advance, but impossible to recede.

1973. The Committee have also had it in evidence from several of the masters themselves that the older ones feel very much being subordinate to the junior lieutenants, who are now very often very young; do you think that that could be remedied?—A junior lieutenant, with respect to the master, is not at all younger than he was in former days. I apprehend that the Honourable Chairman must have been made a lieutenant very young; and I also had the advantage of being made a lieutenant very young, that is to say, as soon as I could be made one. Now, the present lieutenants cannot be younger than they were in those days; but I have never been able to see in what way the master was in any way disagreeably subordinate to the juniors, the very young lieutenants, except upon the occasion of their taking charge of the ship as commanding officers. They have practically nothing at all to do with the master; they cannot give the master any orders, nor interfere with him in any way. And the same state of things will be continued by the new regulations. What is proposed to give the master, and what is therein given him, is purely, if one may use the term, a sort of ornamental rank; it is not a practical rank for command.

1974. Do you see any objection to masters commanding troop ships, and some yachts, and in commands of that description, having higher ranks?—A master in command may, unquestionably, have any rank that you choose to give him; there can be no objection to that.

1975. Do you think there could be any clashing in such a case?—Certainly not, because if you commission a troop ship, and give the command of her to a master, and find officers of a subordinate rank to complete the necessary staff of the ship, there can be no difference between that and there being a captain placed in her, nor can

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can a master having high rank then clash with any other officer.

1976. Do you think it would be beneficial to Her Majesty's naval service in general, that the classes of master, second master, and master's assistant, should be done away with as a separate branch of the service?—I should say, most decidedly not. I am of opinion that it is necessary to the due navigation of the ships, and the acquisition of sufficient pilotage knowledge for all parts of the world, that a class of men should be set apart for that especial duty. You may call the class what you please, but it strikes me that it must be a separate and distinct class, devoted to that particular duty. If you were to abolish the masters, and set up what was agitated nearly 30 years ago, a class of navigating lieutenants, you must be subject to perpetual changes. If the navigating officer was a lieutenant, he might be removed from that rank to a higher rank before he could acquire the necessary experience, because it would not be wise to put him into the charge of the duties now performed by a master so soon as he was made a lieutenant. If you were, for three or four years, to give him a little experience, then you can only give him three or four years to serve as navigating officer before he would have the chance of becoming commander or being raised to a higher rank. No man, under those circumstances, would devote himself to the laborious study that masters are obliged to devote themselves to in order to acquire the necessary knowledge.

1977. You might remedy that, to a certain extent, might you not, if you still kept a certain number of commanders as navigating commanders, after promoting them?—If you make a man a commander, and charge him with the navigating duties of the ship, he must, in the absence of the captain, according to his seniority, come into the executive duties of the ship; and the result would be, that he would be drawn away from his more important duties of master and pilot (as the term is now applied) to go to the detailed executive duties of the ship, with which he is but little conversant, and the different officers and men of the ship would suffer the inconvenience of having a new officer put over them every time the captain happens to go over the ship's side. Then, again, what are you to do with the officer who would be practically superseded if the navigating commander, or the sailing commander, or whatever you choose to call him, had a seniority senior to the commander, if there was one in the ship? Or, under other circumstances, he would come in over the head of the senior lieutenant; therefore, when the captain left the ship, the master would have to assume the executive duties. That is the view that I take of it.

1978. Might he not, in that case, be looked upon more as a staff officer holding a staff appointment than at present, with the express understanding that he should not take the executive duties upon himself?—If you regard a man as a staff officer, or in whatever way you may regard him, if he has seniority over another man of the same rank, he must take the command. There must be a clog. Even if you direct that a master, in that case, shall not conduct the duties, still, there he is; and if any particular exigency arise, he must step out into command.

1979. Do you consider that the masters that you have met with in the service are generally men who have efficiently performed their duties as navigating officers?—I have never met any, except in a very small class of ships, that have not been men of the highest stamp and character,—men, in all respects, fully qualified for their important duties. I have served a great deal in large ships, and have been associated with many masters, men who not only were estimable from their value as officers, but also from their manner and deportment as men and as gentlemen. I have a very high opinion of the masters as a class, and justly so.

1980. Will you be good enough to inform the Committee what service you have had abroad?—I have been more than 50 years a commissioned officer, and out of that time I have served at sea at least 35 years, nearly always abroad. I have commanded every class of man-of-war, from a 10-gun brig to a first-rate, and I have been a great deal in flag ships as a subordinate officer as well as in command.

1981. Have you been first lieutenant and commander of a line-of-battle ship?—Yes, I was first lieutenant for many years. I was first lieutenant of a line-of-battle ship for four years. Commanders were not then placed in ships of the line.

1982. It appears that the masters' assistants and second masters have generrlly been very much employed below instead of doing their duty on deck; has it appeared to you that they require to be better brought up than they now are for their position?—The confinement below to any great degree must of course be prejudicial to their education as seamen and as navigators; but in their early days they have something to learn, and not merely something but a great deal to learn, with regard to the stowage of ships, which is an important part of the duties they will have to perform as masters. But I always sought myself to draw the masters' assistants as much upon deck as possible, and when they were numerous enough I made them keep watch. They were always required to be upon deck, upon certain occasions; when the ship, for instance, was in pilot water, they were to be up to do their duty beside the master, as their name imports, and also to gather experience. But is is neither fair to the young men themselves, nor to the service, to keep them so much below; that is to say, if it has become a greater practice than it was formerly.

1983. It appears from the evidence before the Committee that the masters' assistants have been more on deck latterly than formerly, but still the second masters of larger ships have generally the charge of the lower decks and the holds; is that consistent with your experience?—In my time the second master was occasionally in charge of the holds, but never employed in charge of the decks; but, it must be observed, we had then a large number of mates; in those days the mates unfortunately were then too numerous, as they are now too few.

1984. You stated, did you not, that you considered it an evil that the second master should be kept between decks, instead of on deck learning his duty as a navigator?—In my answer I meant more immediately to observe upon the masters' assistants; but unquestionably it must be an evil if the second master is kept too much between decks. The difficulty is what duty to assign for the whole of his time to a second master. I do not think that the duties upon deck could be sufficiently determined to occupy him advantageously.

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advantageously. I think that the second master and the masters' assistants should be ever at the call of the master, to be on deck when he requires them to be there.

1985. Would he not be in a better position keeping watch on deck, and assisting the master, than between decks, coming up to the assistance of the master when called for. Would it not be more useful that he should learn seamanship on deck, and the manœuvring of the ship, rather than remain so much below?—Certainly; but I do not think it would be well to put him in a watch, because that would again take him away on his watches from assisting the master below. I think he should be a day officer, and he would be a great help and relief to the master in critical navigation, if he were the right sort of man, and if the master were the kind of man to put confidence in him.

1986. Do you think that additional men, of the same standing as warrant officers, might not be safely trusted with the lower decks and holds?—Certainly there ought to be no difficulty in the world in such a service as ours, in providing for the lower deck or for the holds, or for any duties below. If it be deemed important to draw away any particular class from that duty, such as the second master and the masters' assistants, it must be done to the extent that may be necessary to qualify them for their duties, and the commanding officer must arrange for the decks the best way he can. I mean that he should represent his difficulties to the Admiralty, and get such officers as may be the proper persons to take charge of those duties.

1987. The Committee have had it in evidence that masters and second masters go up to pass their examination at the Trinity House, without ever having had an opportunity of learning the channel pilotage; do you consider it would be advantageous to the service that they should be placed for three or six months in a vessel for the express purpose of learning the channel pilotage?—It is, no doubt, a very great drawback on our service that during the time of peace we have so little employment on our own coasts, and so much on foreign service. Officers of the class you are adverting to, without some such plan as that which you have traced out, must necessarily be bred up in total ignorance of the channel, its navigation, its tides, and its soundings, and in fact of all matters connected with it.

1988. You have also stated, have you not, that it would not be an advantage, in your opinion, to select sailing officers from the general class of the lieutenants?—Most decidedly not.

1989. Would it in some measure tend to do away with your objection if those officers were expected to serve in that capacity for six or nine years, and not to look for promotion under that time?—No, it would not. My idea of what I may call the perfectibility of a master requires a greater length of time than that. A gentleman who enters the service as a master's assistant, through his course in that rank, and as a second master, ought to devote his time to the study of that particular branch of the profession to which he is to be devoted; and you would not secure that by bringing them forward as midshipmen; and, particularly if you clog it with a continuance in the rank of lieutenant, you will find, I think, that it will cause disinclination on the part of young men to qualify themselves for the position; they would rather stand apart from it. Every man who enters into what may be called the right line of the service looks to rising to the highest rank, and to do that he looks to promotion with the greatest possible rapidity, and his great object is to get through his rank as rapidly as he can.

1990. I have no doubt that that is the wish of the officers; but do you consider that that is for the interests of the service, which is a point we should not lose sight of. Would it not be rather that the officers should be for six or nine years lieutenants?—I doubt myself whether that might not have the effect, first of all, of destroying that emulation which is productive of so much benefit to the service; and I have always doubted how far it is wise to retain men too long in subordinate positions. I think we have that before us throughout our naval history; many of our best officers have been men who have risen somewhat rapidly.

1991. In theory, no doubt, a master such as you have sketched out would be a very valuable officer; but, practically, do young masters pay that attention to the study of navigation, or is their training in the service such as would enable them to attain that knowledge of the service which it is desirable they should attain?—My acquaintance has been so much with the elder masters that I confess to knowing very little about the younger ones. While I commanded sloops of war, at least two out of three probably were men whom I did not place much confidence in; but the third was a gentleman who afterwards rose to the position of commander. I refer to Mr. Thompson, who died when harbour master of Plymouth Sound, and who, I rather fancy, was considered a master of much ability.

1922. It is in evidence before this Committee that the masters in the large frigates at this moment are, few of them, above six years' standing, they having been taken from the lower deck of a ship, and at once put into the position of a master, first in a sloop, and then in a large frigate. Do you approve of that plan?—It certainly must be a great drawback upon the men that have been so circumstanced; but the evil of keeping them so much below, which has very much increased since my day in the service, is an evil which is susceptible of remedy. The Admiralty have only to give an order, and there is an end of it.

1993. The master attendants of the principal dockyards might have rank of captain. Do you see any objection to that?—I see no objection to that at all. The moment a master passes into a post on shore, he passes into a civil position, and there can be no objection to his having any rank given to him, because, with respect to subordination in the dockyard, he is not looked upon with regard to relative naval rank, it is a civil position in which all take rank according to the way in which they are placed by the Admiralty in the dockyard. I always considered myself as purely a civilian. I only assumed authority as a naval officer in connexion with matters afloat, and if the master attendant could have been an admiral, that would not have placed him out of his position as one of my subordinates. Not only would I give the master attendants all reasonable rank, but I think the masters should be compensated in every way that is practicable; by good pay afloat, and by good retirement, and by good pay in all staff positions. I may take a wrong view, but there seems to me to be a necessity in the service for

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for holding the master in a somewhat peculiar position for the public good, and for that he should be compensated in every manner practicable.

1994. Would you include pensions in what you have stated?—Quite so. I would include pensions, widows' pensions, and all things of that description, which I would give them with as liberal a hand as I could in fairness to others. One must, of course, continue to observe some sort of equality; but I see no objection, and there can be no objection beyond drawing from the public purse.

1995. Do you think it desirable or practicable, having the good of the service in view, to have superior classes of masters, that is to say, to have senior masters of senior rank to the junior masters, so that there should be actual promotion in that class?—I think one of my former answers is upon that point—at least, I meant it to be so—that I apprehend complications and difficulties by giving higher rank than you give command. I endeavoured to explain the difference between a master as a military officer having a certain standing and command in that station, and a purely civil officer who has nothing but rank, and who has no standing whatever in command.

1996. One of their causes of discontent is, that the civilian officers in the Navy have a superior rank to themselves; for instance, surgeons and paymasters and chief engineers. Are you aware of that?—I am perfectly well aware of that, and I think I said, or I meant to have said, that if it be found advisable, that is to say, if it works well, then you may go on; but my apprehension is, that difficulties may arise from a man who is entitled to some command having a higher rank than officers who necessarily ought to command him. I say "ought" for the good of the public service. If you give to the masters the rank of commander and the rank of captain, you may have the master senior even to the captain of the ship. When I first obtained the command of a ship of the line, if that system had been in force it would have been very possible that the master would have been senior to me as captain. It remains for consideration before a step of that sort be taken, how far such a thing would be advisable, or how far it would work well. I went into a line-of-battle ship as captain, with only three years' rank. Now, a master of long standing, if he gets the rank at all, might very well, in a flag ship, have a higher rank than the captain himself, where the one would be sought for from his seniority, and the other from his being a junior officer.

1997. I allude only to relative rank with respect to the army rank?—I perfectly understand the position; and if you can guarantee that there shall be no clashing in consequence of the peculiar position of an officer of military rank having higher nominal rank, then you may give any rank you please. In the dockyards I am quite clear that no mischief can ensue. I know very well what it is there, and I say that in no civil situation can any mischief ensue, but afloat I have my doubts.

1998. In looking to the other duties which the captain has to perform on board the ship, do you think it would answer that he should have more of the duties of navigating the ship thrown upon him than at present?—I hardly see how he can. I always considered myself, as a captain, responsible. I regarded the master as my principal adviser and assistant; and, of course, I relied upon him in matters of pilotage, and in places with which he was well acquainted, and where I knew nothing. For instance, I took a line-of-battle ship to China. I had never been in India before. The master had been both in India and China, but I did not consider that that took the responsibility out of my hands. I think the instructions used to say that the master was charged with the navigation of the ship under the captain, and that is what they say now. Of course, I regard the master, just as you would regard a pilot, as a man by whose advice, unless you found him grievously at fault, which I never did, you were bound in reason to act; but in all critical matters I consulted with the master, and have arrived at conclusions the responsibility of which I was fully prepared to take upon myself. In fact, I could not shake it off. I had no idea of my ability to throw responsibility upon the master, unless he failed in watchfulness, or in the detailed duties which fairly belonged to him. Therefore, with my view of it, I do not see how you can increase the duties of a captain in connexion with the navigation, except you throw him into the details, which would never do, because his other duties would come in the way.

1999. Have you had opportunities of hearing from the superior officers of foreign navies what they think of their system as compared with ours?—No, never; but it will occur to the Committee that the difference between our service and foreign services is very great; we are so much more at sea than they are, and are so much more of cruisers than they are; I mean that we have a much larger number of ships employed in different parts of the world.

2000. Do you think that by way of raising the present rank of master, we could recommend that senior masters should be considered masters of the fleet, and placed on the list as masters of the fleet, as marks of distinction?—There can be no objection to there being a superior class of masters, who should be styled masters of the fleet, or anything else you please. The difficulty about that would be the small opportunity which there is for employing masters of the fleet, and that it would be probably consigning a man to half pay if you made him a master of the fleet, there being no field for employing him.

2001. Could not they be employed in flag ships, at all events?—Only as masters of the fleet; and, if doing duty also as masters of the ship, that would involve all the points which we have been discussing.

2002. My question had reference only to the title as giving a master superior rank in his own especial grade?—That would depend upon whether it is meant that he should do the duty as master of the ship, or only as master of the fleet, because the duties are so very different. The master of the fleet is only brought in conjunction with the commander-in-chief and the captain of the fleet. With regard to the captain of a ship, of course he is subordinate to him in a certain sense, but he has literally nothing to do with him. I served some time in a flag ship where we had a master of the fleet and a master of the ship, and there never was any question there about the difficulties from their being subordinate to the lieutenants, or anything of that kind, simply because they had nothing whatever to do with them, except as executive officers. The master of the fleet occasionally was the bearer of messages from the commander-

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commander-in-chief; he sometimes came to tell the officer of the watch that the commander-in-chief desired this, or desired that, and the officer of the watch acquainted the captain; the order was executed, and there was an end of it.

2003. The masters generally appear to dislike their title of master; could you suggest any other?—No. I think there can be no objection (at least I see none) to any style or title; and if it would gratify a class of officers so deserving as the masters, it certainly should be given to them. One has grown old in the use of the title of master; however, if the class wish a change, I can see no objection whatever to it.

2004. Do you consider that it would be detrimental to the service if the masters ever took command of a ship whilst lieutenants were on board?—Yes; I think it would be detrimental to the service; and I endeavoured, I thought, to explain that it would be drawing the master away from his important duties to mix himself up with duties with which he was not so well acquainted, and which he was not in the constant exercise of, because the duties of a master are not solely confined to the duties of navigating the ship; the stores and rigging demand a very large share of his attention. I consider that every rope in the ship, so to speak, as under the master's eye. It was always my practice to consult with the master before any of the running rigging was changed, or before any change or conversion took place in any of the stores. With him I went over all the expenses, with him I went over all the demands, and I should have felt that I was losing very valuable assistance if that officer had been taken away from me.

2005. At present in most ward-room messes of large ships you have already three officers ranking with lieutenant-colonel to deal with; and do you think that increasing the rank of masters of a certain seniority, whom you would be likely to meet with in a large ship, to that of staff master, would enhance the difficulty?—As respects the mess, certainly not. I see no reason whatever as regards the mess.

2006. But in the ship in general, supposing they remain in their present position, never taking command, do you think that their rank could be increased to that of staff master, so as to give them civil rank equal with those three other officers?—Still I revert in my mind to the position I have stated, namely, my apprehension that the masters having a certain military command, the danger would be of their attempting to exercise a higher military command if they had nominally higher relative rank than that belonging to their position in which they actually have a right to command.

2007. At the present moment master attendants are by the regulations to hold their situations until they are 65 years of age. As there are many masters growing up, who have performed good service to the State, do you think this rule acts with justice to them?—The answer which I would give to that would be, that a limitation would render the appointment less valuable, because a master going into a dockyard must pass from thence to his final retirement. Therefore, if you put a master in that situation, and oblige him to vacate it at an earlier age, the staff appointment is rendered less valuable. It may be circulated among more people, but I should not myself attach any value to a measure of that kind as benefitting the class. I do not think it would benefit them, and I am sure it would not benefit the service.

2008. To what age do you consider that a man can discharge the duties of master in one of our present large ships, where there is a good deal of sea work, with sufficient nerve and judgment?—I am not disposed to fix upon any particular age as a disqualification to a man; much more depends upon his constitution and upon his state of health; some men are old at 45, and others retain their vigour for 20 years afterwards. At the same time, I do not think it advisable that men should be continued in positions afloat to be overworked; I mean when they are beginning to decline in powers.

2009. Do you think that a master might take rank with lieutenants, subject to the regulation that he should be considered at all times subordinate to the commanding officer, whoever he may be?—I understand that to be ordered by this new regulation; and if that is found to work well it then opens the door, or rather, it would remove the objections that I entertain to giving the masters higher rank altogether.

2010. Would a modification of that order that they should be subordinate to the officer doing the duty of commanding officer, not subordinate to all lieutenants, work well?—I take it that is practically the case. No lieutenant on board a ship, except the commanding officer, gives orders to the master; and it seems to me that the lieutenant has nothing whatever to do with him, any more than he has to do with the surgeon or paymaster. You do not find a junior lieutenant giving orders to the surgeon or to the paymaster, and why should he to the master?

2011. At cable work on the lower deck, and such things as that, the lieutenant and the master work together; do you think it would answer in that case that the master should be the superior officer?—I think the superior experience of the master when he goes upon the lower deck, and his practical knowledge, place him so much in advance, that I think there is no difficulty at all; at least I never found any; any suggestion that the master might make to the lieutenant would be immediately attended to. I should have no doubt about it myself.

2012. Have you anything further that you could suggest to the Committee upon the subject which they have under their consideration?—No; I am not aware of having anything to suggest to the Committee; the subject seems to me to be fairly before them. I have nothing which I think could be of any advantage to the Committee to know beyond what I have already stated. My opinion is that every means should be taken to remove any reasonable cause of dissatisfaction that the masters have as to their position; that any change of title, any advance of pay (I mean always, of course, within moderation), advantages of retirement upon favourable grounds, and good staff positions, should be liberally accorded to them. I am quite aware that it is a great sacrifice to have to make to the discipline and well-being of the service; but with the view that I take of it at present, that is a necessary sacrifice, and they should be compensated for it.

2013. But in exceptional cases would not you recommend that they should be promoted to the rank of commander, or the higher positions?—There is no question that for distinguished service the Orders in Council leave the higher ranks open; but those are exceptions to the rule. We have

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have one instance in Captain Hall, who was on service with me in China; he was then a master in the Navy, and had been employed in the East India Company's service privately; he received an acting order as a lieutenant to give him position *vis-à-vis* the naval officers employed in that expedition; he was after that made a lieutenant, and subsequently a commander, and then a captain; and he is now, as the Committee are aware, a Companion of the Bath; in fact he has fairly taken his position among his brother captains. To that I see no objection; but, on the contrary, it is a desirable thing whenever there is a reasonable opportunity for doing it.

2014. And that is also in accordance with the Order in Council, is it not?—Yes.

2015. Seeing that there have been very few instances in which that Order in Council has been acted upon, do you think it would be desirable, in special cases, to act rather more liberally upon that Order?—All classes should be dealt with liberally, and particularly this class, because, as I have stated, they necessarily labour under disadvantages, and those disadvantages should be compensated for in every way you can. But I think that it may be open to consideration how far it is desirable to promote an officer somewhat late in life, as very often is the case with the masters who distinguish themselves, promoting them to be commanders when the heyday of their life is passed. I have before my mind's eye a gentleman whose name, I think, was Fair. He was promoted from being master of the "Amethyst," with Sir Michael Seymour; for his conduct in two frigate actions he was made a commander, and he rose to be a captain; but I think it may be doubted whether it was an advantage to him. He died, as a tablet in St. Helena Church shows, in command of a 20-gun ship on that station, in the 75th or 76th year of his age.

2016. Did the Committee rightly understand you to say, that you would have no objection to changing the title if that could be done without interference with the service?—Certainly not; the name is nothing.

2017. Therefore, if by the regulations the sailing officers should not interfere with the executive officers, you would see no objection to giving the name of staff lieutenants or staff commanders, or staff captains to masters respectively, according to their seniority?—I have already stated, that in giving them the name, if you give them the relative naval rank, I feel a difficulty; but if you can remove that difficulty, if you can be quite sure that there will be no assumption of authority by the masters, then I can see no objection to it.

2018. Might not an Admiralty regulation distinctly define their position?—It is very true that an Admiralty Regulation might define it; but my apprehension (possibly a vain one) is, that on some moment of trial, the master might assert his position, and confusion would ensue.

2019. Seeing that the body of masters do feel themselves very greatly aggrieved, whether justly or not, by this name of master, might it not be worth while to risk that possible contingency?—That is a matter which must rest with the Committee to recommend, and with the Executive to carry out. I can only be responsible for the opinion which I have given as clearly as I can, and which I give with great deference to the experienced officers on the Committee.

[The Witness withdrew.

[Adjourned to Friday next, at 12 o'clock.

Friday, 7th March 1862.

PRESENT:

Rear-Admiral the Hon. C. G. J. B. Elliot, C.B.
Captain Washington, F.R.S.
Captain George Goldsmith, C.B.
Captain Charles Henry May.
Commander Cornelius T. A. Noddall.

Rear-Admiral the Hon. CHARLES G. J. B. ELLIOT, C.B., in the Chair.

Rear-Admiral the Hon. JOSEPH DENMAN, Examined.

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2019*. ARE you aware that a feeling of soreness and dissatisfaction exists among the masters in the Royal Navy, caused by the feeling that they do not hold sufficient relative rank with other officers?—Yes, I believe such is the case.

2020. Do you think they have reasonable grounds for that feeling?—Yes, I think they have, particularly since the last alteration in the ranks of officers, which has taken place since the letter of mine, quoted by Captain Sulivan, was written.

2021. Will you state what you think are their present grievances in that respect?—I think the fact that the paymaster and the surgeon of the ship may rise to the rank of lieutenant-colonel, whilst the masters must stop at the rank of major, is a grievance; that is a new circumstance which has added to their dissatisfaction.

2022. Could you suggest a remedy for those grievances?—I think the remedy would be that the duties of masters should be performed hereafter by lieutenants specially qualified for the purpose; and in a flag-ship I think the duties might be performed by a duly qualified commander, and in smaller ships the duties might be performed by duly qualified sub-lieutenants.

2023. That is to say, you would entirely do away with the masters as a class?—I would. I think great advantage would accrue from it, as introducing more harmony into the service. I should propose that the masters should become lieutenants according to their seniority, and that they should continue to perform their present duties under the title of navigating lieutenants, but that all the present arrangements with respect to pay, half-pay, and retirements, and so on, should be continued with respect to them, exceptionally.

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2024. Do you not look upon the present masters of the service, and particularly the senior ones, as an efficient body of men; and do you not consider that they perform their duties very well?—I think there can be no question that they are an exceedingly efficient class of officers; but I think that if you look at the list of masters you will find that very few of the senior masters are now employed on board sea-going ships.

2025. Have the masters with whom you have served generally been, as a body, efficient men?—Yes, certainly; but I do not think, as a general rule, that when a master first attains that rank he has any advantage whatever over a young lieutenant. Taking the cases of two officers just promoted, having been equally long at sea, a lieutenant and a master, I think the lieutenant has some advantages over the master, because the duties of second master have kept the latter very much below, and he has not had the same opportunities of constant observation that the lieutenant has had. On the other hand, after a short time, by concentrating his attention upon the particular subject, the master soon becomes much more conversant with such matters than the lieutenant, who has no reason in the same degree to fix his attention upon questions of navigation, pilotage, tides, and so on.

2026. Lieutenants are generally made lieutenants within a year or two after they have passed their examination, therefore they have probably been about seven years at sea. A master who has been brought up in the service must have served six years as master's assistant, and two years as second master; and generally he has had five or six years, we will say, on the average, as second master, and therefore he has been considerably longer at sea. Is not that so?—Yes.

2027. Do not you think that under those circumstances the young master would be more efficient than the young lieutenant?—With regard to a letter of mine, part of which has been quoted by Captain Sulivan, I should like to add a further extract from the same letter, which bears upon the subject of your question, and shows that, while I proposed the abolition of masters, I recommended certain changes in the position of lieutenants and mates, as part and parcel of the changes I thought desirable. The letter was dated 16th January 1859:—"I consider that the rapidity of the rise from the inferior ranks is a very great evil,"—that is, speaking of midshipmen—"and a main cause of the great discontent is the length of time that a man must consequently continue in the superior ranks. The rapidity of the rise to lieutenant is caused partly by the position of the mates being so inferior to what it should be, that, if kept there long, all their zeal is destroyed. The effect of the title of 'mate' and 'lieutenant,' given to officers who rank with lieutenants and captains, in fact, is to lower the whole relation of the service as compared with the army, and the mates feel they have not their proper position as officers to maintain.'" I should like to add something more from the same letter:—"I think we should be prepared with some arrangements for taking the captains and mates of merchant ships into the navy during war, as a means of adding to our officers, and of producing a better feeling in the merchant service. I have long urged the abolition of the title of 'mates,' and the creation of a class of seamen who should bear that title, and perform some of the duties which we never can again have enough of those officers to perform. I look to this arrangement as important, in holding out berths to which the best men in the merchant service look as desirable. As for the question of naval titles, there can be no doubt that the self-respect of the service is wounded by the present anomaly. Any one who knows human nature, and especially the feelings of all military services, must acknowledge that the result is very detrimental to zeal and efficiency. I am, therefore, of opinion that it is necessary to give the same titles to mates and lieutenants as are held by the officers in the army with whom they rank. I would call them respectively captains and lieutenants." With reference to the opinion that officers should be kept serving some time in these ranks, it seems to me that sub-lieutenants, as they are now called, should be kept serving a certain number of years after they have passed their examinations. An officer, when he has passed his examination, and proved himself qualified for any service, becomes of infinitely more value to the country than he was when in his apprenticeship; and it seems to me only reasonable that he should, upon so proving his value, assume a very much higher position than he now does. I think that he should be made to feel this step as a decided promotion, calculated to satisfy his mind for some time to come, and that after passing his examination he should have the title of lieutenant, and be in all respects the equal, nominally as well as really, of a lieutenant in the army. I think if he were kept serving in that rank from three to four years, it would be of immense importance to the service, inasmuch as it would give us efficient men to assist the lieutenants (or, as I would call them, captains), at their quarters; whereas now, if a lieutenant is killed, there are only boys to take command of his guns; and the absence of a sufficient number of officers in action, I think might prove of almost fatal consequence to the country in a naval war. I consider that it is absolutely indispensable that there should be officers of this rank in much greater numbers to perform the duties of our ships. In 1814 and 1815, at the end of the war, there were 1,200 mates made lieutenants, and I do not believe there had been one too many while the war lasted. At the present moment, if you look at the list, I think you will find that we have about something like 118 sub-lieutenants, of which one half are acting. This change would have the advantage of meeting, amongst other difficulties, that one which has been suggested by the question, namely, that the transition from the rank of sub-lieutenant to that of lieutenant is at present so rapid, that there is no time for gaining experience; and as some now may reach the rank of captain at 22 or 23 years of age, discontent arises from the wide disparity in the prospects of hard-working officers, with those who attain the highest rank with so little service. It seems to me that those three or four years (whichever might be decided upon), would give ample time for experience being gained; and I should like to observe that, considering the enormous interests that may depend upon the officer of the watch, a lieutenant in the navy, as a general rule, has more important duties devolving upon him than a captain in the army. The safety of the ship and of the crew in his night watch depends upon the lieutenant; and in matters of momentous

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importance to the country, such as the order of fleets during the night-time, the fleet may be entirely thrown out of order, and unfitted to meet an enemy, perhaps found at daylight to be close at hand, by the inexperience of the lieutenants of the night watches. Therefore, I think that in every point of view, what I propose with respect to the extension of the period of service of the officers now entitled, sub-lieutenants would be of the greatest benefit to the country. I wish to explain myself perfectly distinctly, in saying that it would be impossible to retain them in their present rank without very much improving their position, and making the promotion, as soon as they have passed their examinations, one which should be felt by them all to be a promotion, and not, as at present, no promotion at all. With respect to the raising of the titles of the lieutenants and sub-lieutenants to those held by the officers in the army with whom they rank, all the recent changes strengthen my opinion very much.

2028. Under that scheme do you think you could get lieutenants of sufficient experience to take the masters' duty after passing a certain examination?—I have no doubt of it at all. I would also extend the period of service of the lieutenants (under the title of captains) to four years. I believe there are a great number of ships now of the largest size, having masters of very junior standing indeed, who are perfectly efficient.

2029. Do not you look upon the continual practice in that one line that the masters now have as a very important element in their efficiency?—I have no doubt that it is by constant attention to those subjects that the comparative inefficiency of a second master is in time changed for the great efficiency of the masters as a class. But there is one great advantage I should attribute to the change which I have mentioned, namely, that if there were no longer a class specially devoted to these matters, the standard of knowledge with respect to them (which all officers ought to possess) would be greatly raised generally amongst the officers in the navy, because the attention of the service at large would be then much more given to those matters than at present. I think also that the sub-lieutenants desiring to qualify themselves for the special duties of navigating officers should have the advantage of a vessel which should be employed on the coast of England to give them the opportunities of instruction in pilotage in a better manner than the masters have up to the present time enjoyed. I should say that six months of such experience, together with their previous experience and observation, would entirely qualify them for the duties now performed by masters.

2030. Do you look upon the present mode of bringing up the masters' assistants and second master as bad?—I think it is ill calculated to make them efficient in their duties as masters.

2031. Do you not think that the system is capable of great improvement in the actual teaching of the masters' assistants and second masters, and bringing them up to the rank of master?—No doubt, if they were less employed in the hold, if they were more constantly employed in assisting the master in his observations, and other duties, it would greatly improve them; but they would have no advantages at all then, that I am aware of, over the officers that I have mentioned, who had devoted themselves to the same line of duty with the view of becoming navigating officers.

2032. Do you advocate that change chiefly from the feeling that it would be beneficial to the officers of the executive line, lieutenants, captains, and so on, rather than from the feeling that the present body of masters is inefficient?—I have already stated that I consider the present body of masters, as a body, very efficient, but I think there would be great advantages to the service at large from the change I propose, in securing that harmony and good feeling which, I think, it would not be very easy to establish by any other means; and I may say generally that my experience has been that the masters have long considered themselves in an anomalous position, and have always been, so far as my observation goes, more or less discontented, and, I think, not unnaturally so. I believe that you would get officers fully equal in efficiency to the masters, while at the same time you would leaven the whole service with a far higher amount of knowledge as navigators, &c., than that which now exists. With regard to the letter quoted by Captain Sullivan, I am not of opinion that it would be well to have a special corps to be called surveyors or engineers. I think it would be better that the officers qualified for the duties of navigating officers should be upon the general list with the other officers of the same rank.

2033. And that promotion should go on with the regular line?—Yes, in the regular course with the other officers.

2034. Would you propose that a navigating lieutenant should become a navigating commander?—I think that a navigating commander would necessarily be chosen from the navigating lieutenants; but it would not do to make their promotion separate from the general promotion in the service, because a sufficient number of these officers in the higher ranks could not be employed to do justice to their claims to promotion. For instance, although you would want navigating lieutenants for, perhaps, at the present moment, something like 150 ships, you could not possibly want captains with the same qualifications to be specially separated from the rest in a corresponding proportion; for those officers could be only employed in the command of surveying ships, or in the command of ships employed as pioneers of the fleets, such as we had in the Baltic, and must have hereafter whenever our fleets are employed.

2035. Will you be good enough to state what ships you have commanded as commander and captain?—I have commanded the "Curlew" as lieutenant, the "Scylla" and the "Wanderer," as commander, and the Royal Yacht, as captain; making in all, I think, about 15 years in command.

2036. You state in your letter to Captain Sullivan, that you would hold out considerable premiums to officers entering the navigating line as pilots and navigators. Would you hold out greater premiums to those officers than to the first lieutenants of ships?—I think that the expense of instruments, amongst other things, must be considered. I think the first lieutenant in ships not carrying a commander and the navigating lieutenant ought to be put upon the same footing with respect to pay; but there ought to be an increased

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increased allowance to the navigating officer beyond that to the first lieutenant, when he is in charge of large class ships which carry a commander under the captain; and that would also be consistent with the principle of paying more highly according to the increased charge and responsibility.

2037. At present the first lieutenant gets a 1*s* a-day extra, does he not?—Yes. I should think that in ships wherein the first lieutenant is the executive officer under the captain, it would be desirable to give 2 *s.* a-day to the first lieutenant and to the navigating lieutenant, and some extra allowance also to the latter for instruments. When he gets into a large ship in which the first lieutenant is superseded, as it were, by the commander, then it would be reasonable and equitable to give the navigating lieutenant an increased allowance.

2038. Do you consider that a captain should navigate his own ship, of course with assistance, and should be resposible for it?—My view of the service is that the captain of a ship is responsible for the navigation of the ship, and that the master is appointed to be his adviser and assistant in his duties in that respect; but, of course, in waters where the master is specially qualified as pilot, he becomes entirely responsible, excepting in cases where an accident occurs, which might have been prevented by ordinary attention and seamanship, when the captain would be responsible as well as the master; of course the master is in charge in a much higher degree in pilot waters for which he has qualified than in other waters.

2039. The master is required to pass an examination in pilotage only for the British Channel, I believe?—That is, I believe, the case.

2040. Has he any opportunity of obtaining that knowledge, that you are aware of, except from books?—Very often he has not served a week in the British Channel when he goes to pass his examination; and, under those circumstances, which are very common cases, he can have no knowledge but from what he derives from books.

2041. Is there anything in the birth, education, or training of a master's assistant, or second master, that better qualifies him to be the sailing officer of a ship than a young lieutenant?—I think that at the present moment the training on board the "Britannia" gives the midshipman a very great advantage over the master's assistant.

2042. The master's assistant, or second master, is not allowed to go to the Naval College, is he, as cadets are, for a second course of education?—I believe that is so; but however that may be, it would be easily remedied by an alteration of the rule.

2043. But so far as regards the practice hitherto, have they not been refused that part of the training that the lieutenant gets?—I believe it is so.

2044. A mate and a second master pass the same examination for seamanship and for navigation at the Naval College, do they not?—Yes.

2045. What becomes of the second master after that, for the next six years of his service; where has he generally served those six years?—He generally serves below in charge of the holds.

2046. And from that he is taken, and at once becomes master of a small vessel?—Yes.

2047. At the moment he is promoted to be a master, has or has not the lieutenant who has served a great many advantages over him?—I think so, certainly, with the exception only that the second master, knowing the examinations he must pass, will have consulted pilotage books for the British Channel, and so on; but with regard to the practical experience, I consider that a lieutenant, under those circumstances, has a great advantage.

2048. Then do you know any reason why a lieutenant should not be a navigating officer just as well as a master?—I have already stated my opinion that he would be to the full as efficient as the masters now are; of course, supposing the course of training to be good, proper tests of efficiency required, and sufficient inducements held out.

2049. Do you think there would be an advantage in throwing the whole service open, to allow volunteers to offer themselves as navigating officers, provided they could pass a proper examination?—I think there would be a decided advantage in it, and that you might require officers so wishing to qualify themselves to pass a higher examination than the masters now pass.

2050. Do you consider that there is any great mystery in the stowage of the holds, and in looking after rigging, which are the master's other duties, that could not be done equally well by lieutenants and mates, and a class of warrant officers appointed to take charge of the lower deck and holds?—I consider those are the duties of all seamen, and that every officer, of whatever rank, ought to be acquainted with them. They are by no means difficult to learn, and they are not so well understood as they would be now generally, only because there is a special class of officers under whose peculiar province they fall. I should wish to observe, that I have long urged the importance of having a class either of superior petty officers, or, perhaps they might be additional warrant officers; I mean an increased number of seamen officers to assist in those duties in the holds and decks, and various other duties which in the last war were performed by mates, but for which there is not now a sufficient number of officers, from the deficiency of sub-lieutenants.

2051. Then are the Committee to understand you to say, that you consider the setting apart of a separate class, such as the masters, for their special duties, has a tendency to make the other officers indifferent to navigation?—I think it has, and also to lower the general qualifications of the officers of the fleet in many points of seamanship.

2052. Within the last 20 or 25 years has not the introduction of steam and the introduction of iron into our ships, and the building of iron ships, greatly changed the state of the service; so that now it requires other qualifications in a man besides those which the master is generally supposed to have?—I am not aware of any deficiency that I have discovered in the masters upon those points; but, of course, these are reasons for a more scientific education on the part of all officers.

2053. And that scientific education, if I understand you rightly, or a certain amount of it, is given to the mates and refused to the masters at present?—Yes; but, as I said before, that might be remedied without affecting the question of doing away with the rank of masters.

2054. Are you acquainted with what is the practice in different foreign navies; the French, the American, and others?—No, I am not particularly aware of what their course is. I believe that

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that in the French navy the duties are performed by the lieutenants; that there is in every ship a navigating lieutenant. I am not sure what is the case in America.

2055. Do you think that a lieutenant, by doing the duties of navigating officer for six years, would be rendered less fitted to command a ship afterwards?—No; I should think it would render him more fit; and it would be a great advantage also, that in the higher ranks a number of officers who had so qualified themselves should be found, as would be the case after some time.

2056. If that plan were adopted would it not, in the course of a generation, leaven the whole service, and give us captains far more competent to navigate their ships than at present?—I think it would not only give us individual captains, who, having passed through the duties of navigating lieutenants, would have this knowledge, but it would increase the disposition of all to improve themselves in the same manner.

2057. Entertaining those opinions, have you ever considered any scheme for doing away with the present class of masters, and can you suggest anything to the Committee on that subject?—I have already sketched out what my views upon the subject are; that the masters on the list should now be called navigating lieutenants (or, I should rather say, "captains,") that they should remain precisely on the same footing, in regard to pay, &c., as at present, unless they preferred to accept the new arrangement, when they would be put upon the same footing as the other officers of the same rank as regards pay also. I think it would be quite fair to the masters who have recently been promoted, to place them upon the same footing as the rest of the officers of the same rank who might qualify themselves as navigating officers. With respect to masters who have been some time in the service, I think it would be fair to give them their choice, and to allow them to retain all the advantages which they now hold, but making them also eligible for promotion, provided they desired to accept it, and to give up the extra advantages of increased half-pay and so on. Of course I mean that those who prefer to retain their present advantages should get their promotion on the same footing, as masters now get promotion to the rank of commander and captain.

2058. We have it in evidence from the masters, that they entertain a very great objection indeed to the name of master; do you consider that there would be any objection in changing that title to staff lieutenant, staff commander, and staff captain?—That might consist with the very scheme which I am suggesting, excepting that I do not see how appointments could be found for an equal proportion of officers, who would be in fact still masters, in the ranks of commanders and captains. I think that the only way in which you could satisfy their natural desire to rise with the rest of the profession would be by identifying them with the other officers.

2359. In a line-of-battle ship probably it would be necessary to have two commanders—a staff commander to navigate the ship, and a commander as usual for the executive duties; while the staff commander remained in that position, he would retain the distinctive title of staff commander; but if promoted to be a captain, and placed in command of a ship, that title might be dropped. Would you approve of that plan?—I think there would be very great jealousies and difficulties if they had the same titles with the addition of the word "staff," if there were to be, in fact, still two classes of officers. The term "staff lieutenant," is as good as the term "navigating lieutenant;" but, excepting upon the grounds which I suggested before in my evidence, I think it would be attended with many evils to keep them as they are now, on distinct lists and different pay, and not to give them the same ranks and pay with the rest of the service. And I think a greatest objection would be the small number who could be employed as staff commanders and staff captains, and consequently that the promotion would be almost shut to them; whereas if they were included and identified, as I have suggested, with the rest of the list, then the same promotion would be open to them as to the others.

2060. You would not anticipate any difficulty in supplying master attendants for the dockyards and other civil appointments now held by masters?—None whatever. I would fill them, for a certain time to come, by the senior masters (whatever title they might hold); but as soon as the old system was fairly superseded in working operation by the new, which I should anticipate would be the case in some 8 or 10 years, then I should take officers for those appointments from the list of officers who had qualified themselves as navigating officers; and that would operate again as an inducement for officers so to qualify themselves, that they might look forward to such appointments when they became captains.

2061. There might be some little difficulties or even great difficulties in arranging a scheme suitable for the purpose; but do not you consider that the general benefit of the service at large should be considered paramount to any such difficulties, whatever they may be?—I think it would be by no means difficult to satisfy all the just claims of the existing class of masters; and I think that it would be a matter of paramount duty to satisfy those claims, and to keep faith in every way with them. On the other hand, I believe that the interests of the service are entirely in the direction I have specified in my evidence.

2062. You stated, did you not, that it is the concentration of attention on a particular subject which makes the master so efficient?—Yes.

2063. Would not the frequent change of the navigating officer on his promotion or otherwise deprive him of the experience necessary for the safe conducting of our large ships?—I do not think so at all. I think that the attention of some of our ablest officers would be constantly given to the subject, and all officers would give more attention to it than they do now. I think you will find that at the present moment that objection would apply to the masters of one half of our large ships, namely, that they are very young masters—masters of six or seven years standing. I consider that the special duties of a master are not in any degree more difficult to learn than the duties of seamanship in general; and that any man who is a thoroughly good seaman, and an educated man, could, in a very short time, acquire all the special knowledge which is required of a master. I think there would be the concentration of mind necessary for the purpose upon the part of the officers who qualified themselves, and under circumstances more favourable than the circumstances under which

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which the masters have been placed up to the present time.

2064. By merging the masters' list with the lieutenants', what effect would it produce upon the prospects of advancement of the lieutenants?—I do not think it need produce any detrimental effect to their interests.

2065. Would it not be likely to delay promotion from there being more officers added to that class? — My view comprehends the changes throughout the service, which I have already specified with regard to the mates, and also with regard to the lieutenants; namely, that under different titles they should serve a longer time than at present in those ranks, and that the time passed in the rank of captain would be shorter than at present; by which means the country would obtain the service of officers for a longer period as sub-lieutenants, and for a longer period as lieutenants, taking the average of their service; no one could be made a commander so very young as at present, and the prospects of all would be more equal. The advantage of that again would be a great increase of experience upon the part of every officer before he could reach the higher ranks. And with regard to the objection which is suggested, I do not see why a proportionate addition should not be made to the number of the captains in conformity with the addition to the list of lieutenants. I do not see that it will cost the country more money; because at the present moment, by other means and under other denominations, the masters do get advantages, and do get promoted. The difference would be, that master's attendants, harbour masters, and the various good appointments which are open to the masters for the present, would at first be filled by the masters who had been transferred to the lieutenants' list; but after a certain lapse of time they would be taken from the navigating officers who, under the new rules, had become captains. I agree that some addition must be made to the number of captains; but, on the other hand, I observe that at the present moment there is a very large diminution in the number of lieutenants, which seems to have opened the door for the arrangement which I am proposing.

2066. In the scheme which you have proposed, a navigating officer would of course take rank by seniority, would he not?—Yes.

2067. In which case would he not occasionally have other duties of an executive character to perform as well as his own?—Such a case might possibly happen.

2068. How would you meet such a case as that?—I should expect in almost every large ship, at least one other officer to be qualified for navigating lieutenant, although he might not have received the appointment; and if the question arose, of a navigating lieutenant becoming the senior lieutenant of the ship, in a squadron or a fleet I should anticipate a large number of qualified officers, one of whom would be appointed to the vacancy. The case would be the same as if the master died or was killed. I apprehend that although the master is a most valuable officer, yet the ship is not disabled because the master may be on the sick list, or may die, or may be absent. And I speak with some confidence upon that subject, for as a very young lieutenant I commanded a 10-gun brig, and almost the whole time I commanded her the master was sick on shore; and from other circumstances I have been on many occasions in charge of vessels making long voyages, without any assistance of the sort, and I found myself fully competent to navigate the ship. I believe that would be the case now, and that there would be no difficulty in finding assistance among the lieutenants during the time that would elapse before a navigating officer was appointed; and in the meantime the navigating officer having succeeded to the position of first lieutenant or commander, would give a certain amount of superintendence to the subject of the navigation of the ship, which would ensure all that was desired, and place the captain in a much better position than if he had lost a master by death under the present circumstances.

2069. You have proposed that the sub-lieutenants should be kept a certain period before they attain higher rank, and would you insure their promotion at the end of that period?—Yes; provided they have conducted themselves well, I think they should be insured their promotion at the end of the fourth year. As I said before, I am anxious to insist upon that point as a condition upon which I should recommend that scheme—that they should receive the title of lieutenants when they pass their examination, and be placed in a much better position than they are at present.

2070. You would not call them sub-lieutenants?—No, certainly not. I think that the title of sub-lieutenants distinctly states inferiority to the officer in the army, who is in fact equal, and more than any other is open to the objection of mis-stating the rank. A past midshipman should bear the title of lieutenant, and a lieutenant who is of equal rank with a captain in the army should bear the same title, so that equal ranks in the two services should bear equal titles, and not, as at the present moment (as it seems to me), be wholly illusory. It seems to me that to call a man a lieutenant, and then say he is to rank with a major, is giving to the whole idea of naval rank the character of a fiction.

2071. In dealing with the present masters, would you recommend that they should under any circumstances take command in the presence of lieutenants?—I think so long as you have the present system they should not take command over lieutenants, and for a very good reason, which is, that in those matters in which the lieutenant has passed his examination, such as gunnery, and so on, the master has not passed an examination. I think that as soon as the navigating officer is placed on the general list of officers, and possesses all the knowledge which the other officers of the same rank do, he certainly should take command according to seniority. I think also that it would be a very good thing that any officer of a ship should be allowed pilotage for taking the ship into a port, as an encouragement to officers to pay attention to navigation and pilotage.

2072. One of the principal grievances of the masters, as appears from the evidence which they have adduced before the Committee, is their want of relative rank with surgeons, paymasters, and engineers. In order to give them that relative rank, you must give them the civilian rank of lieutenant-colonel, which will make them equal to a commander; and if they got that position, of course they would wear a commander's uniform. Do you think they would rest satisfied with that point, if they had not command over the lieutenants, seeing that the master of the fleet at the present moment wears a commander's uniform, and takes command of lieutenants?—I conceive that if that were granted

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granted it would produce very great evils,—jealousy, and difficulties of various kinds. I think if the present existing class of masters were included in the list of lieutenants now upon the footing I have proposed, it would be well that they should qualify themselves with respect to those matters upon which they are not now examined, though most of them, no doubt, could pass the examinations as well as lieutenants; and after having proved their competency to deal with matters which lieutenants have passed for, and which they have not, they then should be put upon the footing of navigating lieutenants in respect to taking command as well as in all other things.

2073. In that case would you allow them to rise to the rank and position of commander?—I have already explained my view upon the subject as well as I can. The present masters, I think, should be placed on the general list of executive officers with the option of taking their chance of promotion on the same footing as the other officers of the same ranks; but if, on the contrary, they preferred to retain their present prospects, they should be allowed to do so with the same pay, prospects, and promotion as they get now. I am not prepared to say that I have considered that point sufficiently, but what I do say is that their interests should be most carefully considered, so that they may be dealt with in a manner to satisfy all their just claims.

2074. Do you consider it perfectly imperative that the persons doing the duty of the present masters should be executive officers?—I think the navigating officers ought decidedly to be executive officers. In merging the masters with the lieutenants, they should take their position according to their seniority on the list; but I am not prepared to go into more details upon that subject.

2075. Would it be fair to the lieutenants who might be junior to the masters, to have the masters placed over their heads?—This might be felt as a slight hardship; but in all essentials, as regards rates of half pay, which increase as lieutenants approach the head of the list, that might be met by taking care that no lieutenant should suffer any loss by being placed lower on the list; and, as I have already suggested, the masters, though they would be called lieutenants, might still retain whatever advantages they before had with respect to pay.

[The Witness withdrew.

Rear-Admiral ROBERT SPENCER ROBINSON, Examined.

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2076. WILL you state what ships you have commanded, and for what periods?—I commanded the "Phœnix," from June 1839 to March 1840; the "Hydra," from March 1840 to February 1841; the "Arrogant," from February 1850 to October 1852; the "Colossus," from June 1854 to January 1856; the "Royal George," from January 1856 to September 1856; the "Ajax," the "Exmouth," and the "Wellington;" in charge of the Steam Reserve from September 1856 to June 1860.

2077. Are you aware that a feeling of soreness or discontent exists amongst the masters in the Royal Navy, caused by the feeling that they do not hold sufficient relative rank with other officers?—Yes; I think of late years I have been aware that such a feeling has been gaining ground, and I read some little time ago a pamphlet by a master, which I thought represented forcibly, and to my mind very truly, the grievances under which they were labouring. Though I could not agree to all that the pamphlet said, it produced an impression upon me that there was a very strong case made out for some alteration of the present arrangements with regard to the rank of masters. I think they have some reasonable ground of complaint; and I think that every one of us must know very well that masters are a most valuable class of officers. We have all in the course of our service been very much indebted to them in various ways; and to let a body of men so useful and so valuable be under the impression that they are not favourably considered, is unwise and unjust.

2078. You look upon the masters in general as an efficient and useful body of men, do you not?—Yes; generally I think they are splendid examples of utility and good service. I think the average is extremely high, although I have on one or two occasions come across those that were below the mark.

2079. Do you agree with the evidence which has been adduced before the Committee that the education of the masters is bad?—Yes. Of late years I have been struck very much by the circumstance that the masters' assistants and second masters, who are the staple from which our masters are derived, have not had the same education, and have not turned out so well as formerly; and I attribute that very much to the system. There was a great scarcity of mates for some time in the service, and those young men were put in charge of the decks and holds, instead of learning pilotage and seamanship; and although the regulations forbid it, we all know that that was done very constantly. In other respects, too, I think that the education of masters of late years has not been so good as it was formerly.

2080. Might we not improve the education of the masters' assistants and second masters by regulation?—I think it is quite possible to bring them up to the standard at which they were formerly, by preventing their being employed so much on the lower decks and orlops.

2081. Of course the larger proportion of the second masters are now in small vessels; but at the same time a great many others are in large vessels, where they are kept to the hold?—Yes. I should suppose now that there are many more mates than there were, and that the class of sub-lieutenants is gradually augmenting; and I should suppose that that would release the second masters and masters' assistants from that service in the lower decks and holds, to which they were very much tied down at one time. I am speaking now of two or three years ago.

2082. Do you not think it must be very useful for masters' assistants and second masters that they should have an opportunity to cruise in the Channel in small vessels?—Extremely useful. I think no training or instruction would be perfect that did not embrace that sort of teaching.

2083. With regard to the masters as they now stand, could you suggest any remedies for the

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the grievances of which they complain?—That is very much more difficult, as the Committee must well know my time and thoughts are occupied very much about the *matériel*, and these questions can only come incidentally before me, in fact, they are the result of what I thought about the subject some years ago, when I could give more attention to those things. It strikes me that two or three parts of the present regulations, if they were really carried out, and not merely left to be a dead letter, would do somewhat to mitigate the feeling of soreness that I think masters have as to their position with regard to rank and command. In the new instructions, as indeed in the old, at page 54, you see there is a special reservation of the power of the Admiralty to make a master a commander. I am sorry to say that in the course of my experience that privilege has hardly ever been exercised; it is a privilege which I think should have been exercised. I do not pretend to say what difficulties have been in the way, but I think it should not have been allowed to remain a dead letter as it stands there, but it should be held out to all masters, not as an exceptional case, but as the rule for distinguished services.

2084. To a great extent it would always be exceptional, would it not?—Yes. Then there is another thing that has struck me as anomalous, and I do not see how it is possible for it to work well. The instructions, at page 37, say, that in all matters of command the masters, whatever their seniority, are to be subordinate to the lieutenants; and although a master who is of eight years' standing, or after a certain standing has the precedence in rank over lieutenants of less standing, yet he is debarred from taking command. Now I think there is no man who would not feel that a grievance. One can hardly imagine that a master who in action finds himself commanded by a young lieutenant whose rank is inferior to his own would not feel aggrieved. I am not prepared to say exactly how you can remedy this feeling of soreness, which I think that masters have a right to have upon these matters, except in a general way. I think it quite possible, reserving all the existant rights of the masters, to incorporate them into the body of officers of their rank; and without being at all prepared to say in detail how it might be done, I do think it is possible that this Committee with all the evidence which they have taken will be well able to devise a scheme of which that should be the fundamental principle. Of course what I should look to myself, not to-day or to-morrow, but in the course of time, would be that masters, as exceptional officers, should disappear. My idea is that they should be incorporated into the body of the other officers; that a proper selection should be made of officers as navigating lieutenants, or any term you choose to give them, who should in a great measure fill up all those important duties that the master now fills; and that they should rise and have all the benefits of the advancement that is now given to lieutenants. I am perfectly aware that to do this in any given time would be almost impracticable; but speaking as a person who has not had an opportunity of going deeply into the subject, or of thinking a great deal about it, by carrying out strictly what we have now done partially, giving the rank of commander in all cases for distinguished service, and allowing masters to take command in proportion to their rank, and gradually working up to incorporation with the body of officers, and then allowing them to rise, you would get rid of what is an anomalous position, which hurts the feelings of some very valuable officers, and this without losing the efficiency of the service, which of course is the first thing to look to.

2085. The masters have the advantage over their equals in the executive branch in the way of pay and half pay. Do not you look upon that as in some degree given to them as a set-off to their want of rank?—Undoubtedly it was given as compensation for their not rising as the others rise. But I might observe that, supposing the title of master was changed to navigating lieutenant, and he was incorporated with the whole body of lieutenants, I still think that the navigating lieutenants should have superior pay; I think that the advantages which the masters now have, such as master attendantship, and various other prizes, which certainly are too few, should not be cut off from the navigating lieutenant, but, on the contrary, the navigating lieutenant should be the person who in various circumstances should rise to the position now held by masters' attendant.

2086. Would you propose keeping the navigating lieutenant always in the same line?—No, I should not. I should certainly consider that he ought to be promoted like other officers. But I think I could make what I mean clearer by this: If you suppose that a man has been seven or eight years as navigating lieutenant, and has shown great capacity, both in pilotage and navigation, and in attending to all those duties for which a master is so valuable, should rise to be a commander, and take the command of a ship, he ought not to be in the least excluded, but rather to be considered qualified (by removal from that command), supposing he preferred it, to be a master attendant of a dockyard, who is now styled a commander. He should not be precluded from that option; he should have that open to him: but I should say that that privilege should be debarred from the other branches of the service. I mean, I would not permit an officer who was not a navigating lieutenant to have the privilege of going into a dockyard, or enjoying those privileges which are now reserved to masters; they should be reserved only for navigating lieutenants. But I should consider that a navigating lieutenant, if promoted to a commander, would be specially eligible for that post.

2087. Do you think that in a scheme of that sort you would get as able lieutenants to offer in navigating the ship as the master is at present?—I see no reason for doubting it

2088. One advantage of the present system seems to be that the master, particularly in large ships, has considerable experience in that particular line of duty; can you point out any way in which the lieutenant or navigating officer should have equal experience?—Those masters who are at present not disqualified by age, I should suppose, would go upon the list of navigating lieutenants; you would, therefore, have the whole advantage of their experience and intelligence as you now have, for if you look at the Navy List you will see that almost all the old masters are either in coast-guard ships or in dockyards, and in fact, generally, are not afloat. It is the younger ones, the masters of six or seven years' standing, as to whom, if their age corresponds with their standing in the Navy List, I cannot see any objection to their being incorporated in the rank of lieutenants, giving them all the privileges I have referred to, but calling them navigating lieutenants instead of masters, and removing that bar to their rising to captain which now *de facto* exists.

2089. In future, the navigating officers would rise from the other class of the service?—Yes.

2090. How would you ensure having men of experience for navigation in the larger ships?—Those are details as to which I could not give you an answer very satisfactory to myself, because I think it would require very considerable thought as to the education they should receive, and the examinations they should undergo, and the provision that should fairly be made. And until I have considered the subject more than I have now, I do not think I could say that I see my way into the details; but taking a general view of the subject, I do not think it would be difficult to ensure that you should bring up young men to the position of navigating lieutenants, who have sufficient skill in navigation, and sufficient knowledge of pilotage, to enable them to perform the duties now performed by our masters.

2091. Would you propose that it should be compulsory upon the navigating lieutenant in that line?—No, it should certainly not be compulsory.

2092. Looking to the other duties which the captain has to perform on board a ship, do you think it would answer that he should have more of the duties of navigating the ship thrown upon him than at present?—No, certainly not. My opinion is, that the captain, if he follows to the letter his instructions, has an enormous mass of labour to perform, which it is scarcely possible that any one man, unassisted, physically and morally, can perform, in all its parts, and in all its details. I think that the captain's responsibilities in the navigation of a ship are very largely defined in the new instructions. I would not relieve him from them, and I would hold him to the letter of those instructions, but to add anything more to them would certainly be to break his back.

2093. You look to the captain at present as being very responsible for the navigation of the ship?—Extremely responsible. I can scarcely fancy any position in which the ship comes to grief in which the captain is not *primâ facie* to blame, but I consider that nothing can absolve the captain of his responsibility as now defined.

2094. In any scheme which might be proposed, you think, do you not, that it would still be desirable that the captain should have as able assistance as he has at present?—Very desirable. I think I might say that, unless the scheme for amalgamating the masters with the other branches of the profession provides as able assistance as the captain has now, I should not be in favour of adopting it. But practically we all know, that though the captain is as responsible as the instructions make him out to be, there is a very general disposition to allow the master to navigate the ship, with very little overlooking on the captain's part. That practice I should by all means in my power discourage as far as possible.

2095. Do you refer particularly to taking observations, the work, or their other supervision?—To the general supervision of the ship. I think, for instance, that it would be very imprudent to allow the captain to depend entirely upon the master's observation, and not to hold him responsible for taking observations himself; and it would be very imprudent to allow him to say, "the master desired me to take such and such a course," and not look into the matter for himself; and that responsibility is, I think, very clearly laid down at present.

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2096. In the event of the class of masters not being abolished, could you suggest any remedies to remove what you look upon as grievances at present?—Not, I think, beyond what I have already said—that their promotion to the rank of commander should not be a dead letter, but should operate constantly and frequently, and in that case that the rank that they have should also carry command. I think if you do not abolish them, and you choose to keep them in their present position, those are the two things which seem to me to be the only practical way of dealing with the question. You have given them rank, and therefore they should have command. It does seem a strange thing, certainly, that a man should rank over a lieutenant who has been, we will say, five years at sea, he being eight years as master, and yet that the junior in rank should take the command; at least, it strikes me as being an anomaly, and that the command should follow the rank.

2097. Still a master has special duties; might not he be considered even more in the light of a staff officer, who did not interfere in general with the duties of the ship?—I do not quite see how you could make that distinction. I do not know whether what I have said will convey my meaning as to the incorporation of the masters with the others. I think, of course, in that incorporation their knowledge of gunnery and their acquaintance with the steam-engine, and all those points on which the present executive officers are taught, should be cultivated, and that to acquire that knowledge should be incumbent on the navigating lieutenant, before he could be incorporated, and be on the same terms as the other lieutenants on the list. I think that would be very important.

2098. Is not it equally an objection to the master's taking command that he has not studied those subjects, as at present is the case?—I confess I think it is so; but the question is full of difficulties, and until I have heard the evidence of almost all those who are concerned, I should not be prepared to say that I could meet the difficulties of detail. As I have already told the Committee, I have not formed a judgment upon that matter.

2099. You have stated, have you not, that you consider it would be desirable that there should be a class of navigating officers instead of a separate class of masters, and that they should be lieutenants and commanders?—I think so; I think that the present masters should be incorporated with the general list of the officers of the service.

2100. Do you consider that a lieutenant paying attention to the duties of navigating the ship would at all disqualify himself for being an equally good commander or captain?—A lieutenant paying attention to the duties of the navigation of a ship is thereby qualified for becoming a captain; it is part of his qualification.

2101. There would be nothing in his having attended to those special duties of navigating lieutenant that would disqualify him at all for being equal to the commander or captain of the ship?—No; my opinion is, that it would be an additional qualification to his being a commander and captain that he had attended to navigation and pilotage.

2102. In the general affairs of human life, when we wish to select a man for a special purpose, do we not choose from as large an area as we can, instead of from a small one?—I think so.

2103. Would it not be an advantage to add the

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400 masters to the present list of lieutenants, and select the men we want from that list?—Yes; that quite concurs with the view I have come to on the subject.

2104. Is there any doubt that sufficient volunteers would be found among them with the aptitude for navigation, and with rather more than the usual aptitude?—I should think none at all. I think, on the contrary, these studies and pursuits are rather captivating to people of any enterprise. I certainly have constantly met with people with very special aptitude for, and interest in, those very pursuits.

2105. Do you consider that the change which has come over the navy within the last 20 or 25 years from the introduction of steam, from the introduction of iron into the building of our ships, and its effect upon our compasses, does not require a better educated class of men, if we can obtain them?—Yes.

2106. Has not the service generally, in all respects, become far more scientific than it was 30 years ago?—Very much more.

2107. Do you consider that there is a tendency to increase or fall back in that respect?—To increase in every way.

2108. Then is it not reasonable that we should endeavour also to raise the education and training of our officers in the same manner, in order to keep pace with that scientific progress?—It is both reasonable and necessary, I should think.

2109. Do you consider that the education and training of masters' assistants and second masters at all qualifies them for that sort of work?—I have already stated to the Committee, that I think of late years it has particularly tended to disqualify them, for the reason I gave; namely, their constant employment as mates of decks and other places, and they do not acquire a knowledge either of navigation, or of seamanship, or of pilotage.

2110. Do you consider that an additional number of warrant officers, appointed for that special purpose, might take charge of the holds and the decks?—I confess that, having been brought up in the old school, my feelings are rather in favour of a mate or sub-lieutenant, as he is now called; not to keep him there during a long period of service, but during a certain period of service. I think it is a very useful education with regard to many important points which have to come under an officer's attention afterwards, especially in his daily conduct with the men. The habit of being amongst them, and of understanding their feelings, and of controlling them, gives a man those qualifications which he finds extremely useful hereafter in command, and there are many points of seamanship which a man learns upon a deck which he does not learn elsewhere; for instance, handling the cables, stowage of holds and tiers, and attending to many other things which a man learns better as mate of the deck than anywhere else. I should be sorry, under those circumstances, to remove sub-lieutenants during a portion of their time from the charge of the decks.

2111. Probably you would think it desirable that sub-lieutenants should remain longer in that position, and that there should be more of them in the service; at present our ships certainly have not officers that they could so appropriate?—I think we should have more, but I should be sorry to condemn sub-lieutenants to more than four years in that class.

2112. But looking at the general interests of the service, do you consider it to be desirable that a sub-lieutenant should remain two years in that position?—Very desirable, making special examples of promotion for special service, and ability, and conduct, &c.

2113. Do you happen to know what the practice is in foreign navies; have they there any special class such as the masters in the English service?—I am aware that in the French navy now they have not, but it is the only navy of which I have any cognizance. Formerly, in American ships, there was a master, but whether that is so, or not, now, I cannot say.

2114. Have you had any opportunities of hearing the opinion of superior French officers with regard to their navigating system as compared with ours?—Yes, I have spoken to many French naval officers, who thought it a very excellent thing to have a master, and on talking to them about it, I found that the general view of the greater part of them was a desire to discharge themselves from that labour and responsibility. That motive, of course, ought not to influence any officer, and therefore I do not consider that opinion of any great value.

2115. Was that opinion with reference to the responsibility of captains or of navigating lieutenants?—The responsibility of captains. I never had the opportunity of speaking to any navigating lieutenant in the French service as to what his views were; but several captains that I have had an opportunity of speaking to, thought it a very desirable thing to have a master.

2116. You would not abolish the navigating class, but merely change the present position of rank and designation of masters?—I think there should be an officer to assist the captain in the navigation and in the various duties in which the master now helps him, and in that sense I should not abolish the class, neither should I at once incorporate all the masters now in existence with the class and rank of lieutenants; because I do not think it practicable on account of their age and standing and servitude. I only say that, as a general rule, my idea is that it should be done; but I would keep so far a distinct class that the navigating lieutenants should have superior pay, and being so far, while he was charged with that responsible duty, in a better position than the ordinary lieutenants of the ship, having considerably more work to do, I think he ought to have more pay.

2117. Have you considered, with respect to lieutenants in the service, whether it would be unfair upon them to merge the masters into their list with respect to future advancement?—I do not think there would be any unfairness to the lieutenants; but without pledging myself to the details of any scheme, it occurs to me vaguely, that any lieutenant who wished to qualify himself for those advantages of retirement, and dockyards, and things of that kind that have been referred to as open to navigating lieutenants, and to go through the necessary examinations, and to take that in preference to his own especial branch, might do so, provided he showed that he possessed the necessary qualifications; but in drawing up any such scheme, care should be taken that promotion was not made slower in consequence of this addition to the number of lieutenants, and that if it were necessary the number should be modified, so as to prevent this alteration for making the promotion slower.

2118. At what rank should the navigating officer step from active service to the dockyards?

—I think

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—I think it should be decided by length of service.

2119. At what age should he go on service as commander or captain, or when would you withdraw him from active service for a dockyard?—For a dockyard I should say he should be a commander.

2120. How high upon the list should the navigating officer rise?—I should make no distinction between them and the others; he might rise to a flag; the same rules would apply exactly to him as to the other officers. He should serve the same time as commander, and then he should serve the same time as captain, and if he rose to a flag he should receive that in the same way.

2121. If he aspired to dockyard duties you think that he should leave the service at commander's rank?—Yes. If he wished for a more permanent duty by going to a dockyard, he should have the option as a commander. I do not say that, in some of our larger yards perhaps, you might not even allow him to be a post-captain; but that, I think, would be a matter of detail, easily gone into afterwards.

2122. You have justly found fault with the present system of education of masters' assistants; would it be an improvement if they were educated on board the "Britannia," with the cadets?—I do not much like the system of "Britannia" education, and I should not wish to see it enlarged, but you might devise a system of education at a naval college which would be perfection.

2123. Do you think that in doing away with the present class of masters the service would be benefited by it, in this respect, that the amount of knowledge possessed by them would be absorbed amongst the superior officers?—When you say doing away with the present class of masters, that hardly meets what I have endeavoured to explain. Every master who is now on active service, or almost every one, should, in my opinion, be retained, by absorbing them into the present class of lieutenants, so that you would lose, as I understand, nothing whatever of the scientific knowledge which you now have, but you would simply remove a bar from that man's advancement to a higher grade.

2124. But the future advantage that the service would gain by that would be that the officers would possess more knowledge in general?—I should think so, decidedly; you might rely upon this, that proceeding upon that plan you would get in every rank officers of more knowledge than there is now.

2125. In dealing with the present matters as they stand under existing circumstances, would you recommend that masters should ever take command in the presence of lieutenants?—I look to those instructions, and there I find that a master of eight years' standing is superior to a lieutenant of the same standing, and, according to the instructions, he does not take command. I am struck with that anomaly. I think the masters as a class must be struck with it too, and that I myself, if I were in that position, could not help feeling it as a grievance, and that it is desirable to remove that feeling from the masters' minds.

2126. You think they should take command?—Yes; or else I would alter that instruction I confess that I think if, for any reasons which do not strike me, we are not prepared to allow the masters to take the command, it is a very curious thing that they have rank, but that having given them rank, we are not in a position to say they shall not take command.

2127. Would you recommend that, for the benefit of the service, they should take command?—In conjunction with the other reforms that I have mentioned, I would; but, as it stands at present, I am hardly prepared to say that I could recommend it. Without having gone sufficiently carefully into the subject, I think that, as the matter at present stands, if you do not incorporate them, but leave them in their anomalous position, it might be difficult to say that they should take command.

2128. Under those circumstances, can you see any plan to do away with their grievance of not ranking with the surgeon, and paymaster, and chief engineer?—I see that the subject is full of anomalies, and that the only way I could propose to you to get rid of them would be, as I said before, incorporating the masters with the body of lieutenants.

2129. If the masters are to be retained as they are now, can you point out any remedy?—If you retain the masters as they are now, you leave, in my opinion, the anomaly and the injustice.

2130. Do you look upon the principal value of a master, at the present moment, as a pilot or as a navigator?—It is impossible to say which is the highest or most useful part of his duty; they are both essential parts of his duty. Both are of equal importance, and both afford the captain the greatest possible assistance.

2131. You would find many officers who would navigate the ship from port to port, but would you find many who would navigate her by charts, and so pilot her along the coast?—Upon coasts with which the master is unacquainted, I think you would find as much assistance from the navigating officer, selected how you please, as you would from any other man who is not acquainted with the place. But of course one is aware that a master has special qualifications for pilotage in the Channel, as it is made a special branch in their passing examinations to prove that they are qualified for pilotage in the Channel.

2132. Are you aware that there exists at this moment a difficulty in getting volunteers from the main executive line for the surveying service, notwithstanding the valuable advantages which are held out in that service?—No, I was not aware of that; but I should have considered it very probable.

2133. Do you think that that augurs well or ill for getting volunteers for the line of navigating lieutenants, as you propose?—I should say that did not influence it at all; and that you would have a larger choice of surveying officers with my plan, inasmuch as your navigating lieutenants, when promoted to commanders, would very frequently take surveying vessels; it would be one of the special outlets for their promotion and for their employment.

[The Witness withdrew.

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2134. ARE you aware that a feeling of discontent or soreness exists amongst the masters in the Royal Navy, caused by the feeling that they do not hold sufficient relative rank with the other officers?—I never heard it until lately, and that has been in England, at the home ports chiefly. I never heard the subject mooted at all before by any master who was with me.

2135. Do you think that the masters have reasonable ground for feeling discontent or soreness, particularly with regard to their comparative rank?—I think that now they have reasonable ground of complaint. I think that as active officers they should always hold a higher position than the civilian officers of the service; but I am not exactly aware how the case stands. I have only heard that the other civilian officers of the service have been given precedence to them. I look upon it that the masters, being active officers, should rank after the executive officers of the ship, and before all the other civilian officers—before the surgeons, before the paymasters, and before the engineers; and that as they are executive officers to a certain degree, they should undoubtedly precede the others. I hold Article 2 of the Queen's Instructions to be perfectly sound and correct, and I would not deviate from it. I think that had the masters been promoted to the rank of commander for gallantry on all occasions where a lieutenant would have been so promoted, they would have had no cause of complaint whatever. I am of opinion that every master should be promoted and made a commander, and removed from the masters' list to the executive list for any act of gallantry or service for which a lieutenant would have been promoted. I have always thought that promoting him to the rank of lieutenant was not promotion at all, and that they have a right to complain of that. For an act of gallantry and distinguished service the master should be made a commander, unless he preferred himself remaining a master, and taking the advantage of what he has done as entitling him to some of the appointments which masters can hold, such as master attendantships, and so on.

2136. That is to say, you think that there should be exceptionable cases, in which masters should be promoted to commanders for gallantry, and so on?—Yes; by the Order in Council that is distinctly pointed out, but it has not been carried out, and therefore I think that the masters have had injustice done them in that respect.

2137. Have you ever heard that they are dissatisfied with the title of master?—I never did, I am glad to say. I should have looked very lightly upon any officer who had made that a grievance. I think it is a very honourable title, and I have generally seen the masters look up to and respected most highly. In all the ships that I have been in the officers of the ship have been very glad to avail themselves of the masters' information, and to ask their opinion.

2138. Do you think it would be beneficial to Her Majesty's naval service in general that the class of masters, second masters, and masters' assistants should be done away with as a separate branch of the service?—I think that would be highly prejudical to the best interests of the service. I look upon it that the master has to perform special duties, and that there should be a special class for that purpose; and I go further, and say, that with regard to any proposition that I have heard made to carry out the idea of doing away with the class, and substituting lieutenants for them, so far as I am concerned, I would rather not have the substitute at all; because I consider that the lieutenants are brought up and study with a view to becoming captains at the proper time, and the captain would be always teaching the lieutenant to do his work, and would never get the advantage of his experience. In fact, he would be obliged, from courtesy and other reasons, to trust this lieutenant apparently where he really could not do so; and I should say for myself, that I would rather that the whole responsibility should be thrown upon the captain than that we should have an officer inexperienced in that way placed in a position in which the captain could not feel confidence in him.

2139. Do you think that it would answer that a lieutenant who had been brought up as a navigating officer should after promotion do duty in a flag ship or in any other superior appointment as navigating commander?—I think that that is playing with the name, and that the moment you make the masters captains and commanders, the sooner you make the captains and commandders masters, or something else, the better, because I think there should be a distinction of title between the executive officer and the master.

2140. In the event of the class of masters being done away with entirely, and the duty of navigating the ship being performed by a navigating lieutenant under the captain, do you think it would answer that in large ships the navigating lieutenant who had gained experience should, as commander, do the same duties?—I do not think so; I think it would be injurious to the service. And with regard to the title of master, or navigating lieutenant, you might just as well find fault with the one as the other, and rather more so, I think. I should object to any alteration in the position of the master, which has worked so well in the service. I think they have just cause of complaint upon certain points, which I am quite ready to point out; but I think that this attempting to mix them up with the lieutenants and commanders, both by name and by position, would be highly injurious to the best interests of the service. Their special duties and their special character would immediately cease.

2141. Looking to the other duties that a captain has to perform on board a ship, do you think it would answer that he should have more of the duty of navigating the ship thrown upon him than at present?—Certainly not. I can only say that if there is one opinion connected with our profession which I have heard praised and referred to by officers of the French navy more than any other, it is the special position which the master holds. They have always pointed to it; and in regretting the heavy duties thrown upon their captains, some of their best officers have quite lamented that they have not that class of officer. And the moment that you attempt to remove the master from the special position which he now holds, by mixing him up with the executive officers, I think that you will be doing the greatest injury to the service; I would do anything but that; I would reward them in any way you like. But I feel very strongly that such a plan would be a great mischief to the service; and, what is more, I think it would be a

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mischief to the masters, because they hold a far better position now, and I think they would find that out in time.

2142. Will you state to the Committee in what ships you have served and gained experience since you were made commander?—I served in the "Columbine" brig on the coast of Africa for two years; in the "Volage" frigate one year, in China, before we had any charts of the China seas, as captain. I went to the Peiho River, and all that part of the Petcheelee Gulf. I then served three years in the "Eurydice" frigate in the West Indies. I then served again in the "Eurydice," something like nine months on a second commission. I then served in the flag ship, the "Ocean," for 18 months. I then served three years in the "Phaeton," 50-gun frigate, and experimental cruiser. I then served in the "James Watt" two years in the Baltic. I then served as captain of the fleet in the "Royal Albert," 12 months in the Channel, and in command of a fleet on two occasions at sea. I may say that I do not know anything that I should regret more than to see the special class of masters in any way interfered with. I would reward them in every way, and make it worth their while to serve; but I would hold them to their special position.

2143. Have the masters whom you have met with in the service generally been efficient and useful men?—Extremely so, and, because their thoughts being directed from the time they entered the service to one special duty, and their conversation and their studies being in one direction, it is natural that they should become more efficient in that particular duty than if they had a number of other duties to think of.

2144. Do you not look upon the bringing up and the education of the masters' assistants and second masters as somewhat faulty?—It has been very faulty. It has improved of late years; but I think that the whole cause of our being in want of any number of masters that we wish to have, has arisen from the doing away of the class of masters' cadets or the second-class volunteers, and trusting to the merchant service solely as a means of obtaining masters' assistants. If you were to open the door to-morrow to cadets or second-class volunteers (midshipmen are called cadets, and you might call them masters' cadets), you would get boys of just as good an education, and any number of them who would enter the service willingly with their eyes open to what they had before them. And if they were kept more entirely to their own duties under the master, which I think has been done to a greater degree of late, there would be no complaint whatever of wanting masters. On the contrary, I think you would have to check the entry, as you have to check the entry of midshipmen. And with regard to the last war, and the second masters who volunteered from the merchant service, I do not think that those second masters, from what I saw of it, were received with any amount of cordiality by the masters in the service, and that if they left the service afterwards it was more to be attributed to their not having been encouraged by their own distinct line in the service than to any other reason. But I would train cadets for the purpose, and give them every advantage of college education. I would try and bring them forward with a much higher degree of education even than masters have ever had.

2145. Do you think that those second masters who joined from the merchant service were a desirable class to have retained in the service?—Taking them as a body, and taking an equal number of second masters just promoted from different stations in our service, I think they were inferior in some respects; but it must be remembered that it was a hurried thing altogether.

2146. In what way would you improve the position of the masters at present?—I have read the masters' own statement of their grievances and I have read what they propose. I think it would, perhaps, very much shorten the matter if I just give a general opinion without going exactly through it in detail. I have already stated, that in the case of what I call distinguished service in the masters I consider that they have been greatly neglected. I think that the grievance on the score of the education of the second-class volunteers and masters' assistants has been partly removed, and should be fully removed. They should be educated from the time they come on board ship for the express purpose for which they are intended, and they should not be placed to do duties where they cannot learn their proper work. But I think it would be perfectly impossible that they should learn their duties as masters at the same time that they are learning the duties of a lieutenant. I think that that would be just proposing to do what we were trying to undo; because we have been trying to release them from the duties below; and if afterwards it is proposed that they should go away in boats, keep the watch, attend school, and at the same time be learning the masters' duties, I say that they could not do it.

2147. You would rather, would you not, that they were more specially under the masters' directions?—Certainly. Looking to the work that goes on at division, quarters, watch-keeping, boat-going, and instruction by the schoolmaster, if a special cadet were brought into the service to be specially educated as a master, and had to do all that, he could not attend to all those things and to the duties of his education as a master at the same time. The masters propose that the masters' assistants should, after being a short time in the "Britannia," go to cruise in the Channel for six months. I think that at that age that would be useless.

2148. Do not you think it might be useful to give them instructions in pilotage by such means?—Yes, certainly; but not after they have been six months in the navy. I do not think they would learn much as to pilotage by a cruise in the Channel. It says "after six months' teaching on board the 'Illustrious,' which ship is shortly to be superseded by the 'Britannia' for the present cadets, these young officers should be sent to cruise for six months in the Channel" (that is, after their first six months in the service), "to gain an insight into the pilotage." I do not think that at that time of their life it would be of any use to give them this cruise in the Channel; it would be time thrown away. Then they say "they should rank with midshipmen, according to their dates of first appointment, and be made to keep watch, perform boat duty, and attend to the rating of the chronometer, surveying operations," &c. It is very lucky that that is put there, but if you asked them to do these things it would interfere so completely with the special position that they are being brought up for, as master, that it would fail, I am certain. Then they say, "The navigating officer should be held responsible for their professional training." Certainly, I would place them as much as possible under the control of the master, in every way; and I do not see why they should not know the stowage of

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of the ship, but at the same time not in the way they used to do in former days; they should keep watch under the master, and should be attending to things under his direction and specially under his control. I am enlarging upon this, because I think that the reason why we have not a sufficient number of second masters is, that they have closed the door against the whole country from entering the service as master except from the merchant service. It would be very convenient, indeed, if all ranks in the service were to be promoted at a certain specified period; but the consequence of that would be, I think, that in a short time, or after the first war, you would find that if the masters were to be promoted in that way, the lists would become so large that it could not be carried out. I have no objection whatever to double or treble the pay of a master; I value his service so much; and if he is not to look to becoming a captain or an admiral except through some act of gallantry, he should be entitled to increased pay.

2149. That is to say, you would look to the pay in some degree as a set-off for the limit placed upon them with regard to rank?—Certainly. I think that sea-time for a master should increase his half-pay. I would not restrict that to masters only; but as we are on the subject of masters, I say that for half pay and the retiring pensions, whatever they may be, I would make the sea-time count, not the coast-guard ships and so on, but sea-time for claim for their advancement and their increase of pay. I think that that is what has made the masters rather discontented from what I have seen, and that they have found very often that those who have been longest serving at sea, and doing the hardest work, are not those who have been rewarded for it afterwards. In fact, I know that to be the case, for it is only lately that I received a letter to that effect.

2150. Do you see any objection to the masters commanding transports, troop ships (of which there are several), and some of the yachts, having the rank of commander?—I see no grave objections to calling such masters or masters of line-of-battle ships masters commanders, but I really think it is so frivolous a thing that I would rather leave it as it is. At any rate, when a master is in command of a troop ship or vessel of that kind, that would be a very good reason why he should be called a master commander; but I think that all the officers under him should be officers of his own class.

2151. I mean actual promotion as well as an alteration in the name?—I have no objection at all to the master being made a commander, and then they might employ him as they like; but I have a great objection to his being made a commander while he has anything to do with the master's duties. I look upon it that he has a special duty to perform, and that if the captain falls, and the first lieutenant falls, the second lieutenant should be the captain, or the third lieutenant should be the captain, or the fourth lieutenant should be the captain. A master once made a commander of course becomes an executive officer; but I never would give him precedence over the executive officers. He has his advantages in other ways; and if he has not, I would give them to him in every way that I could.

2152. That is to say, you would raise him in relative rank to what the civilians now hold?—Yes.

2153. But you would not give him command greater than he has at present?—No, I would not. I do not say that I would not give it him because he is not fit for it, but because it is a different rank, and I should retain him in that rank.

2154. You look upon his duties as especial?—Yes.

2155. Do you think you might extend the principle of this Article 2, of the Queen's Regulations, and say that we might have masters of a superior rank for large ships and line-of-battle ships, but they should still be subordinate in command to the lieutenants?—Yes; I do not object to that if it is considered as a boon by putting "Commander" after the name, but I do not think that it is much of a boon. I think anything that will remove any soreness and make them more pleased with their position, so long as it does not interfere with the executive, would be desirable. I think that a master commander in a ship where there was a commander would not be objectionable, so long as he does not interfere with the lieutenant. He may express his opinion now, and I think that a lieutenant who in contradiction to the downright opinion of the master, and an old master particularly, on a point of seamanship even on duty in his watch, if he was in the wrong, and had got into a scrape, would be subject to censure; but I would not authorise the master to interfere with him by any prerogative, ordering him to do a thing, for instance; but I would distinctly put him senior to the surgeon, paymaster, and engineer; I think that those officers should rank with but after the master, as they did before.

2156. That is to say, you would put those three classes of civilians in the same position that they have ever been?—Yes, certainly. Perhaps I may be allowed to observe that I think it would be very advantageous to the service if astronomy were made in some way or other more a part of a master's examination than it has hitherto been, and also the scientific branch, the branch of observing. I have found masters who I cannot say seem to be very good observers; I have had others who have been very clever indeed. There are two at the Admiralty at present who were masters with me, and they are very good observers.

2157. At present the masters take command after the lieutenants and before the sub-lieutenants; do you consider that the deportment of the master to the officer of the watch would be in the slightest degree different whether it was a lieutenant or a sub-lieutenant on the deck?—I have never seen it so, and I do not think it should be so. I think that the officer of the watch is deputed by the captain to have charge of the watch, and he has a special duty to perform, in which he ought not to be interfered with by any person but the captain. I think that the master's province is to advise and to point out, as strongly as he likes, on any occasion on which he thinks the service may be benefited by his advice, but we should not have two masters to the officer of the watch, the captain and another. That has been so far even carried out with regard to the first lieutenant and the junior lieutenant, the commander of the ship and the lieutenant, and I have always seen those officers very careful indeed in interfering with the officer of the watch unless it was to save the ship or to prevent some accident. There is another point that I would mention: as captain of the fleet

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fleet I can safely say that I think that the master of the fleet should be more generally appointed where there has been a fleet.

2158. Where there is a captain of the fleet you would like to have a master of the fleet always?—Yes, always. For instance, the captain of the fleet in the Channel had no master of the fleet, and the master of the ship did not feel it his duty to be master of the fleet, and I did not apply to him to do the work of master of the fleet.

2159. You are aware, are you not, that since that time there has been a slight increase to the pay of the masters of flag ships?—Yes; I think if they are not allowed the benefit of any portion of their servitude as acting masters or second masters in their half-pay classification, and only three years of their acting or second master's time for full pay classification, that is a grievance; but that I think has been conceded. I would decidedly give a master of a certain standing such a position as would entitle him to honours. I do not think that honours for gallantry should be conceded for rank where it can possibly be avoided, and I think that masters have a claim that after a certain service as master, if a man becomes a master of a line-of-battle ship where a commander is serving, he should be entitled to have the Order of the Bath along with the commander. But I think that they might have the relative rank without altering the name, and without interference with the executive officers; but the moment that you come to call the masters captains and commanders, I think the best thing you can then do is to give the executive officers a different name. I objected very much to the alteration of the uniform, and I found it most injurious in the Baltic. I have landed, and seen officers with boats of large ships together, and you could not tell one officer from another, and it was in consequence of that difficulty that the peaks of the executive officers were altered, but the moment that was done the engineers and others wanted to have this bit of gold lace on the peak. I think that all that is very frivolous and not worth contention.

2160. With regard to the divided responsibility in navigating a ship of the captain and the master, do you think that more responsibility should be thrown upon the captain than he has at present?—I have never felt that the captain was not responsible for everything that occurred; and I have never felt that the master was not responsible for everything that occurred. I always felt that if the ship got ashore, under all circumstances the captain and the master were pretty sure to come to grief, unless the master differed from the captain. I think that that divided responsibility, so far as it can go, works very well. If a master were to say to me that he thought a thing wrong, and that he would rather not take the responsibility upon himself, the moment he said that, I, as captain would say, "very well, I will now do it upon my own responsibility," and I would take my own course; and in that case the master would be rid of the responsibility. I think that state of things works very well.

2161. As captain, you consider yourself responsible with him?—Yes, with him. I do not think it is possible to alter matters for the better with regard to responsibility; indeed, there is no responsibility that is not divided in any office in the world. In the case of an admiral, he is responsible for everything in his fleet that goes wrong, and he cannot shake off the responsibility. I have never seen any difficulty to arise between the captain and the master, so far as responsibility goes. It works very well at present. Our ships have been well navigated, and if you took away the class of master from the service you would, in my opinion, take away the right arm of the captain from every ship.

2162. You have stated, have you not, that you consider the class of masters a very valuable body of men; you probably speak more especially with regard to the senior masters?—Yes. I have been acquainted with them all, but the senior masters are naturally the most valuable body of men, from their experience, and that is the very thing I do not wish to lose.

2163. Is not the real reason of the superiority of the senior masters, with whom you have been acquainted, their constant practice and experience at sea?—No, not altogether. I think that a master who has had the same practice and experience at sea as a lieutenant is a much better master than the lieutenant would be, from the master having always had his thoughts and his duties connected with that special part of the service.

2164. It has been given in evidence before the Committee that the masters assistants have not the education of naval cadets, and as second masters they are not allowed to go to the Naval College, therefore they have not the advantages that the mates have; that is to say, the second masters, instead of doing their duty on deck as the lieutenants do, and learning seamanship, are put down into the holds and between decks of a ship, and from that they suddenly become masters of small ships; is that a suitable training for a navigating officer, or in what can his superiority over a lieutenant consist at that moment?—I think that one great part of that has been very much improved, and is capable of being still more improved. With regard to a second master availing himself of the college education, I have already expressed myself most strongly on that point; but I do not think, because there have been faults in the training of the junior branches, that that is a reason why you should do away with the master's class. I think it is a reason why you should remedy that fault. When you complain that there are faults in the master's branch, you must also recollect that there have been great faults in the education of the other branches, which have been of late years' very much remedied. We must take care that we do not run too far into that system of education. I myself think that in a few years' time the great difficulty will be to find a sailor. I think that the education seems to be all running in one direction, and you will find it very difficult indeed to find sailors in a very short time.

2165. Do not you consider that the qualifications of a sailor are better learned on deck than between decks and in the hold of a ship?—I have always considered that it was a great mistake that the masters' assistants and second masters should be kept below; but still I have found some of the best sailors in the service who were so brought up. I will name one, who, I have heard, is anxious for a change of some kind, and that is Captain Bower. He was a second-class volunteer in the "Madagascar" with me. He ought to have been kept below; but somehow or other he was always in the top or in the boat, and he was one of the best sailors in the service. I might also mention Commander Brown of Plymouth. If you were to take the signatures to this petition, and look to the names of those men who were brought up even under the unfavourable circumstances in which they were, and look at the intrinsic

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trinsic value of those men, and if you ask me or ask any officer to try and change the system, I say it is a very doubtful question as to whether you could get such a class of men as those again; and I say, do not change it unless you see your way pretty clearly to improve what you have got. I say, remove any defects, remedy any grievance or any evil you can, but do not alter a system that has worked well.

2166. But is not the service changing throughout, or rather has it not most materially changed within the last 20 years, from the introduction of steam, the introduction of iron for building large ships, the effect of the iron upon our compasses, the question of magnetism, and the alteration of naval tactics in consequence of the introduction of steam—does not that show a great deal of change, and does not it require a higher degree of education in an officer than has hitherto been the case?—There is no doubt, that as the schoolmaster has been walking high and low in this country, he will reach the naval officers as well as everybody else; but I must say, that those changes which are referred to in the question have not, in my opinion, improved the state of the service. I do not think they have brought more really efficient officers into the service.

2167. Are not the questions which we shall have to deal with of a different character from what they were formerly?—I think they are very easily learned, especially when you see how an officer can go and pick up steam. I think that an officer can go some three or four or five months, and learn steam thoroughly in some good steam manufactory. With regard to naval tactics, I think we have no tactics in our navy now. I think he can learn at the Naval College to take observations, and to work mathematics; he will also learn gunnery in the ship; and I think that, with one year's study, a man of ordinary capacity would learn all those three branches, after he has arrived at a certain age, pretty well, with an ordinary training beforehand; but he will not learn to be a practical sailor. I think that the experience that you require in a doctor will be equally necessary, for I do believe you can only learn it by long continued service; and if you make him a lieutenant, and remove him from the masters' list, after he has been a certain length of time there, to become an executive officer, you would never have a list of masters with the experience that you have now. I look upon that line as worth its weight in gold, and you ought not to change it.

2168. If the masters are to be retained as a separate class, I think you have stated that you would give them as much education as could be done, and every other advantage?—Yes, and everything gratis.

2169. Would you not allow them a vessel in the Channel in which to learn pilotage?—Decidedly; there should be a steam-vessel for the purpose constantly visiting all the coasts and harbours.

2170. Might not they be removed from the duties between decks and orlops by a class of warrant officers being specially appointed for that purpose?—I think so. I have always been an advocate, and not merely that, but I have written strongly on the subject, and requested that where we were short of officers in our line-of-battle ships, for instance, there should be a first-class boatswain, gunner, and carpenter, and a third-class boatswain, gunner, and carpenter; and I think that the class of warrant officers should be increased immensely in the service. I think that would be better than having the chief petty officers, because they have unfortunately not taken the position in the service that they ought to have done; if all those men had been made warrant officers of the third class it would have been much better.

2171. In consequence of the improvement in the naval police which has taken place on board ship, is not that another reason why a warrant officer would be the proper person to look after the deck?—I don't think this makes much difference.

2172. You wish a highly trained class of men as masters, and, therefore, the more they are prepared for it the better?—Certainly. I think the only special point which I object to in their requisition is, that they should all take command according to their seniority in the ship. I think that that would at once destroy the whole specialty of their position. I do not say that because I do not think they are fit to do it.

2173. I think you said that you do not wish the name of master altered?—I did not say that. Certainly I do not wish it to be made captain and commander; you might make it anything else you like.

2174. If the masters do feel themselves so very much aggrieved by the name, might they not be called staff lieutenants and staff commanders; or would you think that going too far?—I would rather not press any opinion of my own upon the subject. I respect the name of master, and I laugh at the name of staff lieutenant, and I cannot agree that the one is an improvement upon the other. I think that every man and every officer in the ship, when he hears the master called a master, knows that there is a man in the ship who knows something about his work, or at least ought to do; and that he is a man of experience, who is sent for to advise the captain, and that he would advise the lieutenant if anything went wrong; if he was in a boat, or in any scrape, I have heard him over and over again ask the master for advice; and, I think, the moment you begin to call them staff lieutenants or staff commanders, the whole thing would be ridiculed, and he would be laughed at more than he is now. I never heard the name laughed at until I saw it in this book; but, as I have before said, I do not care about the name.

2175. It appears very desirable that you should give the senior masters superior rank to that they now hold; do you think it would answer if it were arranged that, although they should be superior in rank to the young lieutenants, they should always be held subordinate to the commanding officer although he might be a junior lieutenant?—I think I have said before, that whatever increase of rank I gave the master, I should not empower him to give any order to the lieutenants of the ship. I would explain a little there. If you give the power, you cannot control it by saying that they will not do the thing, and they ought not to do the thing; if you give the master the power to give an order to a lieutenant who is junior to him in seniority, he might go down on the main deck and interfere with him, and he might interfere with him whenever he finds him on duty. I do not think that masters are exempt from the common frailty of the rest of their species; and you would find amongst the masters, as well as other classes, a litigious mischievous person sometimes who would do so.

2176. If the alternative were presented to you of abolishing the class entirely, or of giving the masters those advantages which can be obtained

by

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by the civilian branches of the services, which would you prefer, to lose them entirely or to give them those advantages?—I do not see the least difficulty in giving the master the rank and the position which you think he ought to hold, at the same time making a provision that under no circumstances should that rank give him the precedence on duty over lieutenants of the ship; it is that which he is seeking, and it is that which I would most distinctly refuse; that might be easily settled by a single paragraph in the regulation.

2177. Then you would object to the senior masters being given the rank and precedence which the masters of the fleet now have by Article 2, Chapter 4, of the Queen's Regulations?—Yes; I consider that the master of the fleet should not have it. Article 2, if carried out strictly, would give them all that I consider to be necessary. If the truth must be spoken, I would give them everything but command. If a master is to interfere with the duties of lieutenants who are junior to them, why should not the senior lieutenants do the same by the junior masters?—How would they like that in navigating the ship?

[The Witness withdrew.

Adjourned.

Monday, 10*th March* 1862.

PRESENT:

Rear-Admiral The Honourable C. G. J. B. Elliot, C.B.
Captain Washington, F.R.S.
Captain George Goldsmith, C.B.
Captain Charles Henry May.
Commander Cornelius T. A. Noddall.

Rear-Admiral the Hon. C. G. J. B. ELLIOT, C.B., in the Chair.

Captain WILLIAM H. HALL, C.B., R.N.; Examined.

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2178. WILL you be good enough to inform the Committee as to the length and character of your services?—I went to sea in 1811, as a volunteer of the first class, with my friend Captain the Hon. George Byng, who commanded the "Warrior," and I was rated midshipman after I had been two years in that ship. I remained in the "Warrior" over four years, until she was paid off at Chatham in 1815. After the "Warrior," I was appointed to the "Lyra," Captain Basil Hall, got the rating of midshipman and accompanied Lord Amherst's embassy to China, and remained in her the whole of the time of her commission. When in India, the master left the service, and Captain Basil Hall appointed the midshipman who had charge of the morning watch to do the master's duty for that day. When at Madras, he sent for me into his cabin, and said, "Hall, I wish you would take the acting warrant as master; it shall not interfere with your promotion as lieutenant; it will give you a cabin, and that will make you comfortable on board, and I will forward your views when I get home." Under those circumstances, I accepted the acting master's appointment. When we arrived at Portsmouth, the "Lyra" was paid off in 1817. I then joined the "Falmouth," under the command of Captain George Frederick Rich, and I remained in her for two years on the Home Station as second master, the whole of which time I was in charge of a watch, and did lieutenant's duty. After the "Falmouth" was paid off, I joined the "Dwarf" cutter, as acting master, and I think I remained in her for about two years cruising in the Channel after smugglers. In 1821, finding that I stood no chance of getting on in the lieutenants's line, I volunteered my services to go to the coast of Africa with Sir Robert Mends, as second master, in order that I might get my confirmation as master. Soon after our arrival I was appointed acting master to the "Morgiana," Captain Knight, in 1822. She remained some time on the coast, went to the Brazils and the West Indies, came home, and was paid off, and then I was confirmed as master. After that I was appointed to the "Parthian," Captain the Honourable George Barrington. We were employed on the Home Station generally, but were sent to the West Indies and Vera Cruz on particular service. I remained in the "Parthian" the whole of the commission with Captain Barrington, three years, and was paid off in 1825. I was then a short time on half-pay, and I took that opportunity of going to Holland, to get acquainted with the naval ports and dockyards there. I was then appointed to the "Briton." I was three years in the "Briton" with Captain the Honourable William Gordon, employed on the Home Station, and we also went to the Brazils. After the "Briton" I joined the "Blonde," Captain Lord Byron, also on the Home Station, and we went to Bermuda in her. After the "Blonde," I think it was, I passed for a first-rate, and was then appointed to fit out the "St. Vincent," at Portsmouth. I remained in her about nine months, and then Sir William Parker, then one of the Lords of the Admiralty, wanted to appoint me to an 80-gun ship, which was below the rate to which I was entitled. I remonstrated a little about it, and did not join her. After that I went out as commander of an East Indiaman, and made one voyage to India and back. After that I went to America privately, to get a little knowledge of steam, and then, with the sanction of the Admiralty, I accepted the appointment of commander of the "Nemesis" in 1839. We sailed under sealed orders, and I then chose my own officers. I was upwards of three years in command of the "Nemesis," and was made a lieutenant whilst in command of her for my services, by an Order in Council, and the Admiralty were also good enough to indulge me by saying that the whole of my time in the "Nemesis" should count as lieutenant, so that I might be made a commander, and they made me a commander. Afterwards I was appointed to the Royal Yacht, as steam commander, under Lord Adolphus Fitzclarence. I was two seasons in her, at the expiration of which I was made a post-captain. I next commanded

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commanded the "Terrible" during the famine in Ireland. That was merely a temporary command for a few months, and on the return of the "Terrible" from the coast of Ireland their lordships appointed me to the "Dragon," which I commanded for three years, partly on the Home and the Lisbon Stations, and in the Mediterranean. After that I was on half-pay for some short time, and when the ships were fitted out, and war was declared with Russia, I applied to be sent to the Baltic, but I had not sufficient interest to get employed, although I had been in the Baltic with the "Briton," and was the only officer that ever sounded around Cronstadt. I made a rough chart of it, and gave it to Sir George Seymour, and it must be now in the Admiralty. The fleet sailed without me, but I afterwards went to the Baltic in the "Hecla." She was the first ship in action, and I was complimented for my services by Sir James Graham, in the House of Commons. The following year Sir James Graham sent to me, and said that he was so satisfied with my conduct in command of the "Hecla," that he offered the "Blenheim," and then I went in her to the Baltic the last year of the war. After the war was over I was sent to Lisbon, and was a short time there as senior officer, and then came home to the grand review. I was paid off from her in 1856, and have been on half-pay ever since; and I have during this time become one of the Directors of the Peninsular and Oriental Steam Navigation Company.

2179. What standing had you as master when you were made lieutenant?—About 24 years.

2180. With regard to pay, you received less pay, did you not, when you were made a lieutenant than you were entitled to as master of a first-rate?—Yes, certainly.

2181. Are you aware that a feeling of soreness and dissatisfaction exists among the masters in the Royal Navy, caused by the feeling that they do not hold sufficient relative rank with the other officers?—Yes, I am.

2182. Do you think they have reasonable grounds for that feeling?—Yes.

2183. Will you be good enough to state what you consider them to be?—I must congratulate the public service on this Committee being formed, particularly of officers who are practical men, who will be well able to judge of the merits and demerits of the case, and I have no doubt that the result will be favourable to the service. I have long been of opinion that the line of masters, from their not having sufficient rank, and not receiving that encouragement to which from their services they were entitled, ought to be done away with altogether, and that well-qualified lieutenants ought to be selected to navigate the ship, under the captain, and that the navigating lieutenant should undertake all the duties that the master has now to perform, with better pay, and the same chances of promotion as the other lieutenants. I have known, during my long service, many ships nearly lost by running on shore and foul of other vessels, for want of the authority which, as masters, they ought to have possessed. I have known the lead's-man taken out of the chains, the masthead-man called down to wash decks, and a request to just lower the peak, or hoist the jib, to clear danger, to have no attention paid to it by the lieutenant of the watch. In fact, there has always been a sort of jealousy and rivalry existing between the master and the other officers, and I have found that the public service suffers by it. Lieutenants are selected, as Captain Washington must know, for surveying purposes, and no men can execute their duties better than they do. In China, for instance, Lieutenant Collinson and Lieutenant Kellett, who executed their duties in a most admirable manner, and the Committee are well aware how much better they were treated in reward for their exertions in the Yang Tze Kiang than the masters were. In the Baltic also there were Captain Sulivan, Captain Otter, and Mr. F. J. O. Evans, the master of the "Lightning." Those men were not appreciated at first by the Commander-in-Chief, but afterwards he found that no men could do their duty better, or did more good to the public service than they did. I may also mention the master of the fleet and other masters in the Baltic. I mention those officers in particular because they came immediately under my own eye; and the duties that they performed under fire both in China and the Baltic were most important. Now the lieutenants and the commanders who were so employed are all post captains, and not only that, but they are Companions of the Bath; but those in the masters' line, although some of them may have been rewarded in a small degree, still they have not met with that reward which their services entitle them to expect from the country. I know that a better class of men would be introduced into the Navy if the masters were done away with. My view is, that there are very many very valuable and good masters and first-rate sailors still in the Navy, but there are others coming on who never will make good officers. In fact, I know that in Portsmouth and other places there are young men now being introduced as assistant masters who would not be allowed to be introduced as lieutenants, and I do not see why there should be any difference. I referred, before I came this morning, to the old Instructions, and I see that the present Instructions are a little improvement on the old ones; but any one who looks over the important duties that are to be performed by the master, according to those Instructions, and compares them with those that are to be performed by the lieutenants, and who considers that there is only one master, whilst there are perhaps five or six lieutenants in a ship, must come to the conclusion that it is impossible almost for one man to execute the duties which are to be performed by a master, unless he is of superior rank, or in a better position on board the ship. If the class of masters were done away with, I think that the captain ought to be answerable for all those various duties, but I think they would be better executed if they were performed by a lieutenant, selected on account of his preference for that particular branch of the service, in the same manner as the surveying officers are selected for the surveying service.

2184. You stated that you would have well-qualified lieutenants in the place of the present masters; will you state what qualifications you require?—I should say the same qualifications that are required of a lieutenant at present, with this addition, that of course he must pass for the Channel pilotage, and he must know the Channel. With that one addition, I do not see why the same person should not be selected; and by making the pay attached to that situation greater, I do not think that you would find any trouble in getting lieutenants to volunteer for the masters' line, because they would better their condition. This would not stop their promotion; they would take their chance along with the others, and be promoted just the same as any other lieutenants; but I think that such an officer ought to be always next to the first lieutenant, whether he

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has brevet rank or otherwise, because if you appoint a man that is junior, the men would always attend to the senior, and you would have some difficulties on board ship.

2185. You would require more experience, would you not, in seamanship and pilotage?—Yes; I should think that if a change were made young men would be selected after they had passed their examination as midshipmen; after two years. You can soon find out whether a man is fond of seamanship. In the ships that I have commanded, I have found that some of my youngsters were not fit to be made navigating lieutenants, whereas others were perfectly qualified. And if the captain were to be allowed to send in their names, particularly if they made the situation worth the lieutenant's acceptance, I think there would be no difficulty about it. I know many lieutenants who would gladly go afloat as navigating lieutenants if they could get promotion the same as any other lieutenants. There are hundreds that I think would jump at it.

2186. For the large ships I presume that you would wish to have an experienced navigating lieutenant, just as you have an experienced first lieutenant?—Most certainly. His qualifications would be known here at the Admiralty, and he should pass a proper examination. With regard to the examination that he has to pass, my opinion is that it is not necessary for him to go to the Trinity House. I think that some of the old surveying officers that we have in the Navy, and some of the old masters who have retired with a certain rank, would form a very excellent examining board, without any trouble to the Admiralty. The officers would pass an examination before them, and they would find out their qualifications. It is most important that they should know the Channel; and I do not see why we should not have some training brigs to take those officers about, and enable them to learn the Channel. In fact, all midshipmen ought to learn the Channel, whether they become navigating lieutenants or not.

2187. You would for the navigation of large ships take an officer who has had actual experience in that work; will you state to the Committee how you would get experienced men for our heavy ships?—We have many lieutenants now on the list who have been a great deal in the Channel, and if they were asked to come forward, and pass such an examination, and get such an appointment, I have no doubt many would take advantage of it, because it would be worth their while to do so. It would not interfere with their promotion, and, in fact, it would give them constant employment. Many a lieutenant would be made a captain, and when promoted he would be better able to take care of a ship if he came through the navigating lieutenant line.

2188. Do you not consider that it is their constant practice which makes the surveying officers and the senior masters so efficient as navigators?—Yes; but I do not see that the Channel pilotage is so very difficult. We have the very best charts, and the Peninsular and Oriental Company, of which I am a director, find no difficulty, although our men make mistakes sometimes, the same as others; but the captain merely passes a common examination, which is required by the Board of Trade, and we call his attention particularly in the home seas to the soundings, and to take care that the steamer should be kept in the channel fairway; and as they are running all the year round they seldom make mistakes. The charge of navigating the ship is entirely in the captain's hand, of course assisted by the first officer.

2189. Would you require a young officer who chose to take the duties of navigating lieutenant to continue to serve in the same line?—Certainly; but if you saw any advantage in letting him go out, or if any one liked to go out, you might let him do so. I think if you gave them superior pay to the other officers, and proper rank, they would have many advantages in serving; and if they like to serve on it would be much better for the public service. If you found that mates after they had served a certain time had gained sufficient experience, you would make them navigating lieutenants.

2190. Do you think they would prefer going into the navigating line to the first lieutenants' line?—Many would, because I consider that if the situation were made as respectable as the other branch of the service a good many would jump at it.

2191. Would you propose that the navigating line should be better paid than the first lieutenants' line?—That requires consideration. I think you ought to pay a man well who has such arduous duties to perform, and to make it worth his while you must pay him well.

2192. In what manner should the change be made, having special regard to the claims of the many old and valuable officers now on the masters' list?—I think you must deal properly with those officers; and that if you dispense with any of their services, a liberal retirement ought to be given them. And as to those officers who might be selected for active service, the Admiralty would know very well whether they are valuable or not, and they might be offered a navigating lieutenant's commission (that is my idea), so that there may be nothing said afterwards. We have many very valuable masters in the Navy, whose services it would be a great pity to lose.

2193. Though you would put these men on the lieutenants' list, I presume you would not reduce their pay to that of lieutenants?—That all depends upon what you give the navigating lieutenants. If the master of a first-rate is entitled to greater pay than a lieutenant, I should suppose that the navigating lieutenant for a first-rate should certainly have equally as much; in fact, I should recommend giving him rather more, because there is only one officer of his class, and he has the most important and responsible duties to perform, next to the captain.

2194. In the event of the class not being done away with, could you suggest to the Committee any remedies for what they now feel as grievances?—I do not know of anything, unless you gave them more rank, and better pay, and a better chance of promotion. I think the promotion is the great thing.

2195. Supposing promotion were given to them within their own ranks, and we established a superior class of masters, with occasional promotion on to the other lists for special services, do you think that would answer?—I do not think that would remedy the defect at all.

2196. Reverting to what you stated to the Committee respecting remuneration for your services in the "Lyra," in China; you accompanied Lord Amherst's embassy in 1816, did you not?—Yes.

2197. Did you go up to the Gulf of Petcheelee?—Yes.

2198. At that time, were any charts existing of

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of the Gulf of Petcheelee?—We had some charts, but they were very bad ones. I almost doubt whether we had any regular chart authorised by the Admiralty.

2199. At that time had any survey been made of the Gulf of Petcheelee?—No, I think not; but we had some instructions, which were obtained from a ship that had been up there before us with Lord Macartney's embassy, and for that reason, I may be permitted to mention, that we took two surveying vessels up with us, belonging to the East India Company, expressly because the charts were so very bad, and for the purpose of making a partial survey. We allowed those vessels to go and survey wherever they liked. There were two regular surveying officers appointed to them, and I have no doubt the information they procured then was of great use afterwards.

2200. How long did the midshipmen you spoke of as having done the duties as navigating officers and masters perform those duties?—I should think only two or three months; perhaps it might have been a little longer.

2201. During that time, did you not go on a cruise to the west coast of Corea, and discover several islands that now bear the name of Basil Hall's Group, and some others?—Yes.

2202. At that time had you a master?—Yes; our master had not left us then.

2203. Was Captain Basil Hall in the habit of navigating his own ship?—Yes, always; he did all the duties at times.

2204. Do you think that a captain should be able to navigate his own ship?—It is a great advantage to the service if he is able to navigate his own ship. All captains ought to be able to navigate their own ships.

2205. Do you think that a captain's paying attention to navigating his own ship would interfere at all with his doing other duties?—Not at all. The captains of the Peninsular and Oriental Company navigate their own ships.

2206. Did not the captains of the East India ships formerly, and do not the captains now of all large steam-ship companies, navigate their own ships?—Yes, except in pilot water. In pilot water they are glad to take the pilot on board the moment they can get him.

2207. Except in pilot water they all navigate their own ships, do they not?—Yes; they all navigate their own ship; that is to say, assisted by the first officer when the captain pleases.

2208. Were not the captains of the East Indiamen formerly notorious as good navigators?—Yes; from what I remember, they certainly were considered very good navigators.

2209. Might not a navigating lieutenant in the Royal Navy, if he had practice, be as well able to assist the captain as an officer in the East India Company's service or any other merchant service?—Certainly.

2210. Has a master's assistant or a second master any special qualification or training that fits him for being a master?—I think that if the Admiralty Instructions were carried out he would have; but, practically, so far as my experience goes, many of them learn nothing whatever about the Channel, particularly when they go away on a foreign station. Many of them serve nearly all their time abroad; and what can they know about the Channel?

2211. In the large ships in which you have served, has the second master done his duty between decks or in the holds?—Generally speaking, in the holds.

2212. Do you consider that a good education for navigating and piloting the ship?—No; but I may say that when I commanded a ship I invariably told the master, not only on the coast of Ireland but elsewhere, where it was necessary to know and learn the coast, to have the second master and the assistant master up on deck on going into and out of port, and I believe there are many captains who do the same.

2213. Is that the general rule in the service?—I should say not.

2214. A second master and a mate pass exactly the same examination in seamanship and navigation at Portsmouth, do they not?—Yes, I understand so.

2215. Have the second masters generally any opportunities of learning pilotage before they go to pass the examination at the Trinity House?—No; not to my knowledge.

2216. You have stated that you think it very desirable that they should cruise about the Channel in a training ship?—Certainly. I do not know whether I have communicated to the Admiralty, but I think I have mentioned before, that all officers, not only those to be masters, but midshipmen also, ought to go for the six summer months in a training ship, to know our own coasts and learn a seaman's duty; it would do them much more good than any training ship at Portsmouth. In the Baltic we met Russian training ships, and I believe in most other countries they have training ships; and it is obvious what an advantage it would be to any young officer to go round England, Ireland, and Scotland, and into the different bays, and take soundings and learn the localities; he would never forget the knowledge so acquired.

2217. As a young master, did you feel the want of that knowledge yourself?—Not so much, because I had turned my great attention to it. I was so much employed as a junior officer in the Channel, as master of the "Dwarf" cutter.

2218. That gave you, of course, the experience which other officers have not?—Yes, and from which I benefited afterwards. When I was appointed midshipman in the Baltic, we had one of the best masters in the navy in our ship, Mr. McKellar. I was constantly with him, and I gained a great deal of knowledge with him; and the knowledge I gained with him as midshipman made me take charge of the "Briton," in coming through the Belt, as pilot. I said to Sir George Seymour, that with a good chart I saw no difficulty in taking her down. I took charge of her, and navigated her through.

2219. Then the Committee understand that though your education and early life was passed chiefly as midshipman, you felt no difficulty in taking upon you all the duties of a master. How much of your time was passed as midshipman?—Nearly six years. I felt no difficulty at all in navigating the ship. I was very fond of it, from the training I got with Captain Basil Hall. On surveying the coral reefs he drilled us pretty well, and we were fit for anything.

2220. If the captain of a ship, like Captain Basil Hall, navigated his own ship, and took an interest in navigating his own ship, is not it probable that all the young officers in that ship would acquire much more knowledge of navigating than they do at present?—Most certainly; but he not merely navigated his own ship, but he made every one else navigate her; and I am happy to say that if we wanted the captain to take the time for us, and we asked him to do it, he would do so.

2221. Does

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2221. Does not the example set by the captain on board ship generally give the cue to all the officers in the ship?—Certainly. Captain Hall used to make me turn out every two hours at night to mark the meteorological journal. He published it afterwards, and it is a very important document.

2222. We may venture to suppose that at this time you feel very grateful to Captain Basil Hall, for the education and training that he gave you?—Yes; I respect his memory very much.

2223. Has it not benefited you in your professional services?—Yes, always. I never regretted the loss of any captain more than that of Captain Basil Hall.

2224. Do you consider that setting a class of officers apart as masters to attend to the navigation of the ship has a tendency to make the other officers in the ship indifferent to navigation?—Yes; I have found it so, both during the time I was in command and before.

2225. You have mentioned your services in the Baltic; did not the lieutenants navigate the gun-boats which they commanded in the Baltic?—Yes, with a great deal of credit to themselves. In my gun-boat, when she went on particular service, I allowed the second master to go to assist in the navigation.

2226. As a general rule, I believe they had not second masters?—No, they had not.

2227. Have you any doubt in your own mind, from your knowledge of the younger officers of the service, that plenty of navigating lieutenants would be found, if an opportunity were offered to them?—I think so, if proper encouragement were given them. At first there might be a little difficulty, but with proper encouragement, and time, they would be found.

2228. At first there would be all the present masters, would there not, to act as sailing officers for the last ten years?—Yes.

2229. After a navigating lieutenant had done that special duty for six years, should you consider him fit for a line-of-battle ship?—Certainly. I think that if a navigating lieutenant served in a ship in the Channel for two years he would be fit for anything afterwards, so far as experience goes, and pilotage in the Channel, which is the most particular thing which we have to consider.

2230. There is no great mystery in navigating a ship from port to port in the open ocean, is there?—None whatever; it is nothing but what any officer might do.

2231. The difficulty begins when you come into pilotage waters?—The difficulty begins when you come into the Channel in thick weather. You are often several days with no observations, and you have to take very great care of your ship; but the Channel is more difficult than many other navigations. That is caused by the fogs; and if you do not pay attention to the lead, the chances are that you well get into some scrape.

2232. I understand you to say that you would not abolish the navigating class, but merely change their present designation of master?—Yes; I mean that entirely. I do not think that you would succeed in obtaining the object of the Government, namely, the safety of the ships, unless you abolished the class of masters entirely, and take advantage of the encouragement you can give them by making them navigating lieutenants, so as not to interfere with their promotion.

2233. Would you retain a special class for navigating?—Yes, certainly. I think that the duties of the captain of a man-of-war are very numerous; and though he may navigate his ship well, and do other things well, there are certain duties for a navigating lieutenant which are of very great importance. The cadets should be entered the same as now, in my opinion, and during the time of their entering the service, until they passed their second examination, the captain would find out what they were made of, and report, if they were encouraged in the navigating line they would make very smart navigating officers; therefore they might be made lieutenants, or you might select some lieutenants who are fond of navigating, but they ought to be quite distinct.

2234. I understand you to say that you would have a distinct class for navigating ships?—Yes; but they should have all the advantages that lieutenants have of promotion, rank, and everything else. I think the public service would benefit very much from that, and the captain also.

2235. How would you place the masters upon the lieutenants' list, by seniority or otherwise?—By seniority. I suppose it would be for their lordships to consider what would be a liberal offer for them, and whether they would accept it or not. I have not had any conversation with them upon the subject; but speaking from what I know of their feeling, I should think that two-thirds of the masters would be quite delighted to be put on the lieutenants' list, and made navigating lieutenants, with advantages they never had had before.

2236. What effect would this produce upon the advancement of the lieutenants?—I do not think it would interfere with the lieutenants at all; because I consider that many lieutenants who have not interest would gladly accept the post of navigating lieutenant, and perhaps might be made commanders sooner in consequence, because merit would go a great way then, and they would have an opportunity of showing what they could do, either in surveying, or any dashing work in boats, or anything else.

2237. By infusing the masters with the lieutenants, you would increase the number by some 300 or 400, would you not?—Yes; I think the public service requires it. I do not think that we are over-numbered with active officers of that rank now, in case of war.

2238. Would not frequent promotion tend to check the attention necessary to thoroughly qualify officers for the performance of the duty of navigating ships?—I do not see how that would interfere; promotions are not frequent with men who have no interest; indeed quite the reverse is the case.

2239. Do you think that an officer would be able to acquire the experience necessary to make him a good navigating officer?—He would have, during his service, either as mate or lieutenant, to pass an examination to qualify himself for this appointment. If he did not pass his examination, he could not be possibly appointed. If he passed his examination, and was promoted immediately afterwards, it would be his good fortune. The examination must be passed before he could take charge of any of Her Majesty's ships as a navigating lieutenant. The examination, as I have mentioned before, might be made at Portsmouth, or at the Admiralty, by competent officers of our own, without going to the Trinity Board.

2240. Do you think that the service would be improved by what you suggest?—Very much, indeed.

2241. Since you have been in command of ships, have you considered the navigation duties superior or inferior to those of any ordinary lieutenant

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tenant, or the duties of a captain?—At times, when I had a master whom I had not confidence in, I used always to navigate the ship myself, and I never trusted to anyone. I think that the most superior duty of the captain is to see to the safety of the ship; and at times when the captain has a master who does not come quite up to the mark, he should attend to the navigation himself.

2242. Do you consider the navigation of our ships, generally speaking, well performed at present by the masters?—Generally speaking, I should say they are.

2243. Do you consider that any class that you could bring forward would do it better?—Yes; in the way I have suggested, with proper encouragement, they would do it better.

2244. In what respect?—I think you would get a superior class of men to what you are now getting into the service, and with encouragement they would devote more of their time to navigation, and it would be much better for the public service altogether.

2245. The great advantage of doing away with the present class of masters, you consider, would be getting rid of their discontent?—Not at all. I should like to see every possible liberal offer made to them. I would give retirement to some of them, and with regard to the others, I would get as many good men as I could from that line into the navigating lieutenants' line.

2246. If the masters were retained in the Navy, the designation which you would apply to them would be that of navigating lieutenant or lieutenant?—They would be put in the list of lieutenants, and the other list would be entirely blotted out from the Navy.

2247. Have you read Article 2, page 27, in the new Instructions, with regard to masters taking rank with lieutenants, but junior in command to all lieutenants?—Yes.

2248. Have you any remark to make upon that subject?—I do not think that would give entire satisfaction.

2249. Do you think they ought to have military command over lieutenants?—Yes; provided that their seniority was greater; that is to say, if the masters' class is not to be done away with. I think that if during war there were two lieutenants in a ship, and one of the lieutenants was a junior one, and the master was senior to him, I do not see why the master should not take command of the ship. We must consider what is best for the good of the service and the safety of the ship, because when you have a junior lieutenant who has not been long a lieutenant, and an experienced master, it would cause great dissatisfaction if the command was given to the junior lieutenant.

2250. Do you consider, on looking at the Instructions, that no master could carry out those Instructions properly, for want of superior rank?—Yes, I consider that the duties of a master, as laid down in the Instructions, are so great, that, being in the inferior rank in which he is now, he has not the command or authority necessary to enable him to carry out those Instructions properly, as they ought to be carried out, because he has to attend to the navigation of the ship, her stowage and trim, the store rooms, &c.; and if the first lieutenant were to go down he would get double the work done that a master could. There is too much in the Instructions for the master to do.

2251. Are you aware that great difficulty exists at present in obtaining officers from the main executive line to fill positions in the surveying service, though the pecuniary advantages offered by that service are comparatively greater than any other?—No; I am not aware of that. I always understood that the pay of the surveying service was so liberal, and the pick was so great, that there was no difficulty in getting proper officers for it.

2252. As this is the case, and a fact, how do you think that augurs for obtaining recruits for the special navigating branch which you propose?—I am still of the same opinion, that if the masters were put into the other list I do not think you would have any difficulty about it, if proper encouragement were given. It has been my opinion for the last 20 or 30 years that the state of things should be altered. I have had a good many obstacles to contend with from the junior lieutenants. I have been often obliged to go to the captain, and say that I could not do my duty if he did not support me. Things may appear very trifling when in the open ocean, but when going into harbour, or along the coast, if the master's orders are not acted on very promptly, the consequences to the service may be very serious.

2253. Would not the same difficulty exist if the officer were a navigating lieutenant instead of a master?—No; I think it would not. A man acts with a very different feeling if he knows that his officer may be a commander, to what he does if the officer is in a subordinate position. There has always been a great jealousy, as long as I can remember, in the service about the difference in the two classes of officers.

2254. Do you consider that the title of master is an ambiguous and an objectionable one?—Yes; in the way the masters have been treated all along. I think they thoroughly dislike it, from being kept down in so subordinate a position, not getting promotion, and not receiving their reward even for gallantry before an enemy, so that I am not at all astonished at the great discontent which now prevails amongst the masters. Unless you can amalgamate them with the other class, and promote them according to merit, I doubt whether you could ever get on well.

2255. Can you suggest a better title, supposing the class to be continued?—No, I do not know that I can.

[The Witness withdrew.

Captain WASHINGTON, R.N., F.R.S., a Member of the Committee, Examined.

Captain *Washington,* R.N., F.R.S.

2256. YOU are Hydrographer to the Navy, are you not?—I am.

2257. What number of each class of officers are employed as surveyors and assistant surveyors?—Six captains, 12 commanders, about seven lieutenants, and 45 masters, second masters, and masters' assistants; about 70 altogether.

2258. What extra pay do those officers receive?—A captain or commander in charge of a survey on the Home station, receives 13 *s.* 6 *d.*,

surveying

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surveying pay; on a foreign station, 20*s.* a day; a lieutenant or master in charge of a survey, has 10*s.* a day at home, and 15*s.* a day abroad. The assistant surveyors are divided into three classes, receiving, respectively, 7*s.*, 5*s.*, and 3*s.* a day at home, and 8*s.*, 6*s.* and 4*s.* abroad. Besides which those employed at home, who are surveying from the shore, have the usual allowances, according to the Admiralty regulations, for lodging and subsistence.

2259. What promotions are given to the surveying service?—A captain's commission once in two years, a commander's and a lieutenant's commission once every year; but no promotion amongst the master's line. Whatever their services may be, they cannot have promotion.

2260. How do you account for there being such a large proportion of masters in the surveying service, as compared with officers of the regular branch of the service?—The inducement of pay unquestionably is the consideration to the masters' assistants and second masters, and they become qualified, and then we are glad to turn their services to account. Besides which, promotion for lieutenants is so very limited that latterly, in the general line of the service, promotion has come much quicker. The senior lieutenant on the list must be of nine years' standing before he can get promotion. The promotion is usually by seniority, but not necessarily so, and good service, and especially good service abroad, would give priority. It is the duty of the hydrographer to place before the Board of Admiralty the names of the three senior officers in each rank every year, and if there is reason for passing over a senior, it must be stated.

2261. Would you receive more lieutenants in the surveying department if they offered themselves, or would you take masters in preference?—We should gladly receive lieutenants if they offered themselves, and formerly the greater part of our most distinguished surveyors were of the executive branch of the service, and many are so now. At present the surveying service is recruited chiefly from the Greenwich school. Those boys are already very well grounded in surveying duties, and after a few years' training, they become good surveyors; it is the education that the boys come with that renders them useful.

2162. You mentioned, in putting a question to Mr. Bodie, that what the Admiralty pay for pilotage every year is about 12,000*l.* in ordinary years, and in some years that it would amount to 28,000*l.* Can you inform the Committee, approximately, how much the masters received, and how much went to the pilots, and can you name the sum which any individual master in the Navy received for pilotage?—Of the 28,566*l.* paid for pilotage in the year 1854-5 only 2,861*l.*, or one tenth of the whole, was paid to masters who have a commission as "master and pilot." The master of the "Edinburgh," in the Baltic, received 108*l.*; of the "Impérieuse," 104*l.*; and of the "Duke of Wellington," 101*l.*, in nine months. It is greatly to be desired that masters should take charge of ships as pilots; they would be gainers by so doing, both in pocket and in professional knowledge, and the saving to the country would be very large, probably one half.

[Adjourned.

MEMORANDUM

AS TO

THE POSITION OF MASTERS IN THE NAVY.

If the Masters' class is to be retained as a separate branch, I concur in the Report of the Committee (with the exception of paragraphs 7 and 16), and I have therefore signed it.

2. But differing entirely as I do from my colleagues on the main question that has been referred to us, namely, "whether it would be beneficial to the service that the class of masters should be done away with as a separate branch?" I consider myself bound to place on record that it is my deliberate opinion and conviction that it would be for the best interest of the service at present, and more especially so as regards the future welfare of the Navy, that the class of masters should be abolished as a separate branch, and that the officers comprising it should be merged in the list of lieutenants, commanders, and captains, at the earliest moment that a practical scheme for doing so can be formed.

3. I am fully aware that such an opinion is contrary to that of some of the most distinguished and experienced of the senior flag-officers of the Navy, and it is with the greatest deference and respect that I venture to differ from them. But having considered all the evidence that has been given, as well as the statements that have been laid before the Committee, it appears to me that the objections to the proposal I advocate have reference more to what the naval service was 20 or 30 years since rather than to what it is at present; and that the changes that are being brought about in our own Navy from various causes, and the rapid strides that are being made in the Marine of most foreign countries, have hardly received sufficient consideration. Among other causes, may be enumerated the more general use of iron in the construction of our ships, its probable extension, and the several questions in practical magnetism as affecting the safety of navigation which it gives rise to; the general use of steam, and especially the use of steam as applied to naval tactics; an entirely new mode of warfare in connection with armour-plated ships and steam rams; the rapid progress in gunnery, and the introduction of the Armstrong gun; the classification of the steam reserve in divisions, and the ships being kept stowed and rigged, and ready for immediate service; and the fact that from the better education that has lately been given to the more strictly executive branches of the profession, many of the lieutenants, commanders, and young captains, do actually navigate and pilot the gunboats and ships which they command.

4. I need hardly say that I entirely concur with the opinion that has been repeatedly expressed before the Committee as to the efficiency of the officers that form the senior portion of the masters' class; I have had more than usual opportunities of becoming acquainted with most of them, and although anything I could add might appear unnecessary after the honourable testimony to their value that has been borne by some distinguished officers, yet I may be permitted to say that the master-attendants and Queen's harbour-masters generally, the masters in the Royal and Admiralty yachts, those in the flag-ships and depôt ships at home and abroad, and doubtless several others, are an honour to the profession to which they belong. I fully admit the justice of the claims of the masters to have their grievances redressed, and I have cordially co-operated with my colleagues in an endeavour to remedy them as far as a remedy can be found.

5. I fear, however, that while they are retained as a separate class, no real remedy can be applied. Judging by the evidence laid before the Committee, the character and qualifications of the master, especially in time of war, place him next in importance to the captain; nay, in a fleet he is the immediate adviser of the Admiral and Commander in Chief. Yet, while all admit the value of his services, all agree in denying him the rank and position due to such services. The only mode, then, of overcoming the difficulty, of obviating the anomaly, and of reconciling the conflicting elements, would seem to be, to abolish the separate class, and to place the masters on the main executive lists on a par with the other officers of their standing.

6. But apart from rendering justice to masters, it appears to me that there is a higher motive for doing away with the class,—namely, the general benefit of the service, by breaking up the monopoly of a large share of professional knowledge, reserved apparently for one branch, and that not the principal executive branch of the service. The master, by the Admiralty Instructions, is entrusted with the care of the rigging, and expenditure of stores, the stowage of the holds, the charge of the anchors and cables, the custody of chronometers and compasses, the navigation of the ship on the ocean, the pilotage in narrow waters, and the steering and conning of the ship in time of battle. My great desire would be to see the knowledge, experience, and skill, which may be obtained in the performance of such duties, absorbed among the lieutenants, commanders, and captains, all of whom would become more efficient in their respective positions by the addition to their professional qualifications, which would be the sure and certain result of abolishing the separate class.

7. I think it cannot be denied that the system of entrusting the pilotage and navigation of Her Majesty's ships to a single class, as masters, must have a tendency to beget indifference or inattention to those particular duties in the lieutenants and other officers of the main executive branch. It can hardly be expected that a young officer, who knows that when once he has passed his examination at the Naval College, he will probably never be called upon to navigate a ship, should keep up his knowledge of navigation or astronomy. The master is there to attend to such duties, and why should he give himself any trouble about it, unless an officer has a special taste for the subject, such as is, I fear, too generally the result. Whereas, by throwing the work and responsibility of navigating and piloting and conning the ship on the lieutenants and other officers of the executive branch, a more general acquaintance with those duties would be cultivated and diffused throughout the service; emulation would be encouraged, and those who might subsequently be called upon to command Her Majesty's ships, even if they had not performed the special duties of a navigating officer, could not fail to have a more general knowledge of those subjects, and thus prove far more efficient commanders and captains.

8. The principal objections usually made to the proposal for doing away with the master's class, seem to be comprised under the following heads:—

a. The important nature of the master's duties, which require a special class of officer, and a special training to enable him to execute them.

b. That a master's experience is necessary to the safety and efficient conduct of a ship.

c. That a lieutenant appointed as navigating officer would naturally be looking for his advancement, would soon be promoted, and thus could not gain the requisite experience to navigate and pilot a ship with safety.

I propose briefly to examine these objections *seriatim*. The seven chief duties assigned to a master are set forth in paragraph 6, and looking at them as a whole, they may appear very responsible, but if examined a little closely, they will most of them, from the altered circumstances of the Navy, be found to be less important than was formerly the case. At the risk of being wearisome, I am obliged to enter into some details upon this point, and I must be excused if I am compelled to state some very plain truths. But let it not be for one moment imagined that I wish to underrate the importance of these duties; on the contrary, I think that every officer should be thoroughly trained in them, and in every other point of seamanship; I would have them systematically taught, and, if possible, the charge of them taken by turns (with the exception of navigation and pilotage), by every officer in the ship, as is done in the French marine. My only object in the following remarks is to divest them of any mystery that may be attached to them and to show that every officer in the service is as well able to acquire a knowledge of such duties as the master himself.

9. Taking them in order, the first duty is the care of the rigging and expenditure of stores. The more important parts of rigging that required all the craft of the old seamen are rapidly becoming of wire or chain, on the qualities of which, and the modes of securing, the engineer of the ship would give as sound an opinion as the master. The remainder of the rigging might safely be left to the commander, or first lieutenant and boatswain, and the account of expenditure of stores might be settled between the boatswain and the paymaster's office, which I believe is the usual practice at present. The gunnery lieutenant and gunner should be responsible for the now highly valuable gunner's stores, and the carpenter for his stores. If any further superintendence were required, it would be performed with more authority by the first lieutenant, or by the commander in line-of-battle ships and large frigates.

10. The second duty is the stowage of the holds, and many officers who have given evidence lay great stress on this branch of a master's knowledge. In the good old days of shingle ballast, ground tier butts, leaguers, and hemp cables (that is, 50 years ago), and when ships had a fore, main, and after hold, the stowage of a 120-gun ship was something to boast of; but at present an engine of 1,000 horse power has entire possession of the main hold; water casks have been replaced by compact close-fitting iron tanks; chain cables stow in deep lockers; the fore and after holds, where they still exist, are reduced to the smallest dimensions, and in the "Warrior" and the "Defence," and all similar armour-plated ships, what remains of the holds is divided into 15 compartments by watertight bulkheads, so that there is little scope left for the exercise of any qualification, but a sort of Chinese ingenuity, how to pack the largest amount of provisions and stores into the smallest possible space. But even over this shadow of the former stowage of a hold the master has no longer the same control, for all our ships, as they are advanced to the first class steam reserve, are generally stowed and provisioned in the basin of the dockyard before the master is appointed.

11. The charge of the anchors and cables stands as the third duty. In the days of hempen cables, some skill was requisite to coil them in the cable tiers, and it was properly considered a good point of seamanship, while the best seamen on the forecastle were employed to bend the cables to the anchors on approaching the land. But here, again, iron has usurped the ground; the blacksmith, with a single stroke of his sledge hammer, shackles the chain to the ring of the anchor; the well-known cries in the cable tier of "sheave-ho!" and "side out for a bend!" are "voices of the past," and the chain messenger now drags the iron cable to the brink of the chain locker, and it coils itself down in the simplest manner, nearly without the help of man.

But it must not be supposed that I underrate the duties attendant on the charge of the anchors and cables. I deem the vigilant supervision of every appliance tending to their perfect action so as to secure the safety of the ship and crew in cases of extreme peril, one of the most important duties an officer has to perform; also that experience and skill are necessary for the handling chain cables in our larger ships, especially in bringing up in a tide-way, and in the more ordinary occupations of mooring and unmooring, placing of swivels, the arrangements for slipping and veering, the periodical surveys for ensuring efficiency, &c., and, considering these points of professional knowledge so essential an element in the training of every executive officer, I should rejoice to find them more generally diffused, and not confined in practice to a particular class.

12. The custody of chronometers and compasses forms the fourth charge. This duty is really an important and highly honourable one. But what special qualification has the master for it beyond that of any other officer? His duty is to wind up the chronometers, to compare them, and ascertain their errors and rates; but anything beyond this bare duty does not appear to have occurred to him. It is singular that among the 800 chronometers distributed among the

fleet, all under the charge of the masters, not a remark of any importance respecting them is ever received; even the chronometer journal ordered by the instructions, is not sent in by one master out of three. One might have expected that having these delicate instruments always under hand, and having ample leisure to study their peculiarities, some remarks on their management and rates of going might be looked for, or at least that by this time we should have had good meridian distances measured all over the world.

In like manner with the compass. Although the safe navigation of the ship depends upon this instrument, little trouble appears to be taken to get a thorough knowledge of it (with two highly honourable exceptions), and it is a question whether much more than one half of the masters afloat could make out an accurate deviation table, and allow the correction the right way, if it had not already been done for them by the masters of the flag-ships at the home ports. As to the complicated questions respecting magnetism that are likely to arise in our armour-plated ships, they are quite innocent; nor have they received any education that would enable them to grapple with them. The fact of the increase of more than one degree of deviation for every degree that the "Warrior" or "Defence" heels over when on a north or south course, and that in other iron ships this increase amounts to two degrees, and even to three degrees, for each degree of heel, may be cited in illustration of the class of questions I refer to.

13. The navigation of the ship on the ocean stands next in order. It is self-evident that there is no difficulty in this duty, and that any lieutenant, and most midshipmen, ought to be able to execute it; it is given in evidence that the master of the "Lyra" fell sick in China, and the midshipmen took it by turns to navigate the ship from the Gulf of Pechili to England; only last month the "Calypso" returned home from the Pacific; the ship had been without a master for a year and a half; the first lieutenant, in addition to his other duties, had navigated the ship for the whole of the time, and brought her to England through the Strait of Magellan, surveying on his way an anchorage in the strait; in fact, as already mentioned, many of the lieutenants, commanders, and young captains, do actually navigate and pilot the gunboats and ships which they command. Now, the master has generally no watch to keep, and at sea has little else to do but to attend to the navigation of the ship, to make observations, to work up his reckoning; and with the ample leisure that he enjoys, the constant practice, and the aid that he is afforded by an unlimited supply of general charts, wind and current charts, and sailing directions, he should be a skilful and a safe navigator. Is he so? No doubt many masters are; but it is well known to those who have inquired into it, and to no one better than their own brother officers, that, with the exception of the seniors and some few picked men, there are, on this head, strong symptoms of deterioration (possibly from circumstances in some degree beyond their own control); and the number of ships that have recently been on shore on the African, China, and West India stations, the losses of the "Birkenhead," "Raleigh," "Transit," "Assistance," "Perseverance," "Driver," and "Conqueror," and the hair-breadth escapes of others, go far to confirm the fact.

I must repeat that it is neither within my province, nor is it my object to cast blame on any individual, but to submit such facts as I believe to be the bad results of the system, in order that the remedy to be applied may be proportionate to the magnitude of the evil which appears to me to exist. It is much more agreeable to award praise; and in justice to those masters who now occupy a senior standing on the list, I may be permitted to express the gratification that not only personally I felt, but that was generally entertained throughout the service, during the two Baltic campaigns of 1854–55, at the seamanlike and able manner in which the ships were handled in that difficult navigation.

14. The pilotage of a ship in narrow waters is confessedly the most important of a master's duties. By his commission he is appointed "master and pilot;" he passes an examination for Channel pilotage, and he receives a higher rate of pay than other officers of his standing. The question arises, are masters generally good pilots? or, so much so, that other officers might not with three years' practice be fully equal to them? I fear the answer must be that recent losses point to a want of efficiency in this respect. And, indeed, how should they be good pilots? It appears from the testimony of nearly every witness examined that, notwithstanding the regulations to the contrary, masters' assistants in

large ships frequently, and second masters nearly always, are kept below in charge of the hold, and between decks; they have no opportunity of acquiring a knowlege of the Channel pilotage; and it is notorious that for about one month before the passing day, they cram from an epitome, like Pinnock's Catechisms, for their examination at the Trinity House, and at the end of three months have most probably forgotten all they had learnt by rote. What pilotage they know, then, must be learnt after they take charge as second master or master of a sloop, and so far at the risk of Her Majesty's vessels. Although, as I have said before, the master's commission is as "master and pilot," I think it will surprise the service to learn that the pilotage of the Navy amounts to 12,000 *l.* a year, and that in the year 1854-55, that of the Russian campaign, it rose to 28,000 *l.* At least it must be admitted that our "separate class" is a costly class, and that the country pays very dear for it.

15. The last duty on the list is the steering and conning of a line-of-battle ship or heavy frigate in time of battle. No doubt this is a highly important duty, and requires good nerve, great coolness, a quick eye, and thorough practice in steering a ship; and history records some noble examples of this service being well performed by masters, as by Bowen in the action of the 1st June, and by Gaze at Algiers. The management and conning of a ship can only be learnt by continual practice, but I see no reason why a sailing or staff commander, by the time he has served eight years as navigating lieutenant, should not be competent to fill the position. He has a further advantage, that in his youth he will have studied and passed an examination in steam, and thus have learnt to know what a steamer can do, and possibly may have gone into the subject of the application of steam to naval tactics. Now a master is not required to pass any such examination, nor is any opportunity afforded him, as a general rule, as far as I am aware, of becoming acquainted with steam beyond what he may pick up on board a ship. Good judgment, united with the requisite professional knowledge, is, after all, the most valuable qualification that an officer should possess when placed in this most responsible position; but there is no reason why this rare quality should be confined to the masters' class.

16. It is not impossible that the introduction of armour-plated ships and steam rams may have an important bearing on this question. If a steam ram were about to give her stem to an opponent, is it conceivable that the captain of the ram should delegate his authority to a master at that critical moment; would he not rather, at all hazards, be bound to take the responsibility on himself? If this be so, should he not have a training for handling and steering his ship promptly under any emergency? Would he not feel far more confidence in himself had he passed through the grades of navigating officer, and had for some years had charge of the steering and conning of the ship? Very recent events point to this mode of warfare as likely to play a prominent part in any future naval action; and would it be wise, then, to wait until the time of need before training our younger executive officers to acquire that self-reliance and confidence which can only be gained by continual practice?

17. The next objection urged against any changes in the masters' class is, that the above duties require a special class of officers and a special training. I fully admit the special training; but I deny *in toto* the necessity of a special class. It is singular that the officers who in theory so warmly insist upon this special training, have themselves in practice allowed the greatest bar to be placed upon the training for the most important duties of navigation and pilotage, by sanctioning the masters' assistants and second masters being generally kept between decks and in the holds. The fact is, that a master's training in the above duties only begins when he is placed in charge of a sloop. The real training is continual practice and the feeling of responsibility, based upon a good liberal general education, combined with the usual professional knowledge; if this be so, there can be no doubt but that a lieutenant at the end of five years, who devotes himself to the subject at sea, must, in the nature of things, be a better navigator and pilot than the master as at present trained. The objection that the lieutenant would be constantly looking for promotion, which would unsettle him and prevent his paying attention to his duties, would be easily met by a regulation that he should not, as a general rule, be promoted till he had served eight years (which is much less than the general average of a lieutenant's service), unless

under special circumstances. If a fair share of promotion were awarded to the lieutenants who had well performed the navigating duties, doubtless many competent volunteers would be found to accept the appointment under such conditions, and the experience derived from five to six years' constant practice, would be ample to fit him for the charge of a line-of-battle ship. In support of these views it may be stated that the masters in the "Mersey," and other large frigates, are only of six years' standing as masters at the present time.

18. I believe that I have fairly stated and examined all the objections usually urged against doing away with the masters as a separate class; and what do they amount to? Are they for a moment to be entertained, when placed against the paramount importance of removing that standing cause of indifference or inattention to the navigation of the ship by other officers, which is engendered by retaining the masters as a separate class, and giving them a monopoly of those duties. That this indifference does exist to a great extent is proved in numerous cases of wreck, or of touching the ground. About three years since, a 90-gun ship in a fog ran ashore at the back of the Lizard; the officer of the watch, a lieutenant, stated at the court of inquiry that he did not know that the ship was in the English Channel! I am unwilling to refer to a recent loss of one of Her Majesty's ships in the West Indies, but the case furnishes so complete an illustration of the prejudicial effect I have referred to, that I am compelled briefly to mention a few of the details that bear upon the point. The "Conqueror" sailed from Jamaica, bound to Bermudas, by the Crooked Island passage, a track that, notwithstanding the notoriety of its currents, is followed by hundreds of English and American merchant vessels in safety.

19. It is unnecessary for the present purpose to follow the ship's voyage until, at nine o'clock in the evening, the ship took her departure from the north-west end of Crooked Island, at about three miles off shore, as the master supposed. The course for the Bermudas was about N. E., but as the trade wind varied from E. N. E. to N. E. during the night, the ship would only lie up from North to N. N. W. The night was fine, the stars bright, with passing clouds, the water smooth, but the horizon rather hazy. At a quarter past 5 o'clock on the following morning, just before break of day, the ship was ashore on an island 18 miles to the westward of her supposed position. The master at first thought the ship was on Watling Island, about 25 miles to the north, but it eventually proved that the ship was on Rum Cay. On the court-martial that took place, the master was asked why he did not get observations of the stars. He replied, as it was not a case of latitude, he did not think it necessary to do so. If it was not a case of latitude, it must have been of longitude, or of both combined. Now, although the horizon was rather hazy, as it always is in these latitudes, the stars were visible; and in the short run of nine hours, in addition to the Pole star (always available), no less than 12 bright stars passed the meridian, half in the northern sky and half to the south. If then a pair of stars had been taken, one to the north and the other to the south, the hazy horizon could hardly have caused an error of three miles in latitude. During the same period of the night seven bright stars and planets were available for getting sights for time, half in the east and half in the west, thus again neutralizing the effect of the hazy horizon; and by any pair of these stars, and the three chronometers on board, the longitude might have been obtained within one mile of the truth.

20. Yet not a single observation was made for either latitude or time. I am wrong. One observation was made; the midshipman of the watch observed, as he supposed, the meridian altitude of Sirius. This was duly recorded in the deck log; the officer of the watch signed his initials to it as verifying it, and it was afterwards unsuspiciously copied by the master into the ship's log. It turned out on examination that Sirius had passed the meridian two hours before its supposed meridian altitude was taken! It is not, however, with an individual master that I have to do; it is to the system and its baneful results that I wish to draw attention. Three different lieutenants of this ship took charge respectively of the first, middle, and morning watches; they were, it may be assumed, good officers, and knew that they were among islands, between which it is well known a current sets with varying strength; the stars were visible, the water smooth, no sails to trim, nor anything else to do to disturb the even tenor of the night watch; yet it does not seem to have occurred to any one of them simply

to get the latitude. No; the master had pricked off the ship's position on the chart; the master had desired to be called if the ship's head broke off; the master had left word to keep a good look-out for land; and what had they, the lieutenants, to do with the navigation of the ship? I appeal to any unprejudiced person to say if it is possible to have more convincing proof of the withering influence that the separate class of masters, with their monopoly of special duties, exercises on the general service. Is there any other possible mode of accounting for this intense indifference to the navigation and the safety of the ship?

21. We have heard a great deal of the masters' grievances; why, the grievance of the general service against the masters' class is twenty-fold. Why is the British Navy, through the incompetency or carelessness of individuals of this class, to risk becoming the bye-word of Europe? Undoubtedly, justice demands that the masters' grievances should be removed, and I trust they will be; but justice much more imperatively demands that the grievance of the Navy against the masters' class should at once be remedied.

22. In considering this subject, there is one fact that must not be overlooked—no foreign navy has a separate class of officers similar to that of masters; in all cases the captain has charge of the navigation of the ship, and he is assisted by a navigating lieutenant or sub-lieutenant, whose special duty for the time being is to attend to it, to have charge of the chronometers, and keep the reckoning of the ship. Another officer, in a large ship, has the supervision of the anchors and cables, and the stowage of the holds, another has charge of the decks, another of the boats, and each, I believe, in his turn. Naval tactics and steam tactics are also taught theoretically, if not practically. It so happens that I was on board "La Normandi" last autumn at Cherbourg, when the captain and senior lieutenant discussed with me the difficult question of the action of an iron-sided ship upon the compass, thus giving proof how generally that sort of information was diffused in the French marine, but which with us, by system, is almost monopolised by a separate class. It was given in evidence to the Committee, that the navigating lieutenant of a French frigate, when visiting on board an English ship at the Cape, and wishing to discuss the best mode of making a passage to China, received for answer, "Those are things we do not enter into; you must ask the master, and he will tell you." Surely it would be worth while to make an effort to place ourselves on these points more on a par with our neighbours.

23. There is a point with respect to the junior branches of the masters' class that must be noticed. It is referred to in paragraphs 39 and 40 of the Report of the Committee, but the whole state of the case is not there shown. It is generally supposed that this branch of the Navy is partly recruited from the merchant service. The very opposite is the fact. There is reason to believe that of 120 second masters and masters' assistants who have resigned or are "unaccounted for" during the last 10 years, the greater part of them are in the merchant service. The "casualties" in this class of officers are somewhat remarkable, and would be incredible if not based on official returns. Of the 453 fresh entries during the last 10 years, considerably less than one-half have reached the rank of master; 59 have died, 51 have resigned, 80 have left the service and are unaccounted for, and 90 have been dismissed.

24. Of the 221 individuals resigned, unaccounted for, and dismissed, 41 were confirmed second masters, several acting second masters, and the rest masters' assistants. It will be under the average if we assume the pay, provisions, &c., of each individual at 100*l.* a year, or, in other words, that these young *alumni* of the "special class" are a charge on the Navy Estimates for 22,000*l.* a year, on an average, for five years; after which (if not dismissed) they resign or quit without leave, and the greater part join the merchant service. I think that the officers who so strenuously advocate the retention of this "special class" can be little aware how dear the country pays for it, and how greatly the service generally (but especially the young cadets) must suffer in character from its connection with it.

25. I am aware, and it was given in evidence before the Committee, that recently a much more vigilant supervision has been exercised over the entry of

youngsters for this branch of the service, and I am perfectly satisfied that it is now in safe keeping; nor would anything have induced me to enter upon the ungracious task of setting forth these statistics but the necessity of proving to demonstration the absolute need that exists of a thorough investigation, social, moral, and professional, into the junior portions of this class of officers, before any amalgamation with the other branch of the Navy is allowed to take place. Justice to Her Majesty's service requires it, and no consideration of pity or of influence should be permitted to interfere with it. There is a precedent for it after the close of the long war in 1815, and there is no reason why that precedent should not be followed. Liberal compensation may possibly have to be made in some cases, but the benefit to be derived will be cheap at any price.

26. One objection offers itself to the abolition of the master's class, which should not be passed over. Naval officers of limited means have hitherto looked to the master's class as a good position in which to place their sons; and their Lordships have usually considered the services of parents as a claim for entry in this branch. It is submitted that instead, a larger share of nominations of naval cadets, marine cadets, and assistant clerks, also of the clerkships at Somerset House, and at the several docks and victualling yards, might be given to the sons of naval officers. I am aware that service claims are always taken into consideration, and never more so than at present; and such claims might perhaps be allowed to have yet more weight with reference to the increased number of cadets, which, under the proposed scheme, it would be necessary to enter.

27. If the retention of the master's class be most prejudicial to the practical efficiency of the general service, as the more I consider the question the more firmly do I believe it to be the case, then I hold it to be sound policy to abolish it altogether and at once, instead of perpetuating it under another form, and thus postponing for an indefinite period those reforms in the organisation of the main executive branch which are necessary to the well-being of the service, and to maintain that character which has hitherto stood so high. The marine of all neighbouring nations is advancing by rapid strides, and it must not be that England should be left behind in the race. Sooner or later the strife must come; naval warfare will assume a novel and more fearful form; the clinging to a system of more than a century old, and not in harmony with the age, will not avail us in time of need. Let us then, by timely reform, leading to a better general acquaintance with all the duties of the service, and especially that very important one, in time of action, of handling and conning a ship, probably in pilot waters, train up our young executive officers to acquire that self-reliance and confidence which can only be safely based upon a familiar knowledge and practice of all branches of his profession.

John Washington.
London, 31 March 1862. Hydrographer.

SUGGESTIONS towards a SCHEME for AMALGAMATION.

SHOULD their Lordships, after full consideration of all the circumstances of the case, come to the decision that the bolder measure is the better, and that the masters as a separate class should be abolished, the present would seem a favourable moment for making the change; and I would submit that the whole question be referred to the Commission Branch, to see how the transition can be best effected with justice to all parties concerned, but keeping in view the general benefit of the service before all other considerations. A liberal scale of retirement would soon reduce the masters' list to a very manageable number, and the effective remainder might be placed on the list of commanders and lieutenants, according to length of service at sea.

If I may venture to offer an opinion, I would say, that the first step would be to put a stop at once to any further entry of masters' assistants, and to increase proportionably the entry of cadets. Fifty annually would probably be an ample addition to the present number.

It would then be necessary to consider how the present masters should be provided for, on which head I can only offer a few statistics. On reviewing the Active List for the 1st January 1862, it will be found that the following is the disposal of those officers :—

Employed afloat (including surveying service) - -	220
,, in Coast Guard - - - - - -	46
,, in contract steam vessels - - - -	2
,, in transport service - - - - -	2
On half-pay - - - - - - - - -	86
TOTAL - - -	356

Of the whole number it is estimated that from various causes 75 to 80 are practically ineffective and might retire. This would leave 280 effective masters to be dealt with.

Treating this retirement of 75 to 80 officers more specifically, it will be seen that, taking masters of 15 years' seniority and upwards on the list, there are 109, and the youngest man on it is probably not less than 42 or 43 years of age. It is considered that about 50 of these seniors (including 13 in the Coast Guard) would retire or be placed on a reserved list.

For the retirement of these 50 senior masters, it is considered that not more than 30 (irrespective of age) come within the present requirements of servitude for retiring with the rank of commander and captain; to these may be added perhaps five special cases, where, although the servitude may not have been made up, the good services of these few officers were deserving of consideration.

Of the remaining 247 of those below 15 years' seniority, it is considered that 25 to 30 are ineffective, including 13 serving in the Coast Guard, who have been employed in that service for the last five consecutive years.*

It remains to deal with 275 or 280 effective masters. Assuming that a servitude afloat of 15 years in the rank of master, provided that he has served one-third of that time on foreign stations, or in ships composing the Channel fleet, or commanded a yacht, or has served well on a home survey, entitles an officer to the rank of commander, and that a selection from all masters with 10 years' sea time, of those individuals whose distinguished services were in their Lordships' opinion deserving of such reward were made, it is considered that there would be from 25 to 30 recipients; leaving 245 or 250 effective masters to be placed on the Lieutenants' list.

As, however, a proportion of these officers, amounting to about one half, or perhaps 150, have earned by servitude rates of full and half pay, exceeding the rates of the lists they are presumed to be placed on, it is a question whether they might not better be placed on supplementary lists till all are absorbed or retired.

The following is the state of the Active List of the lieutenants and commanders on the 1st of January 1862 :—

	Lieutenants.	Commanders.
Employed afloat - - - - - -	564	129
,, in Coast Guard - - -	58	67
,, in contract steam vessels - -	19	14
,, in transport service - - -	5	6
,, in naval hospitals - - -	2	–
On half pay - - - - - - -	205	233
TOTAL - - -	853	449

By a comparison of these lists we see that, within very small fractions, one-fourth of the active masters' lists, one-fourth of the active lieutenants', and one-half of the active commanders', are on half pay.

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* It is here assumed that this five years' service would disqualify a master for service afloat.

By the Order in Council relative to retirement of the 1st August 1860, the number of lieutenants on the Active List is limited to 1,200; by combining that active lists of masters and lieutenants as they now stand, will only exceed that number by nine, and if the two lists were cleared of ineffectives combined, they would not probably amount to more than 975 or 1,000. At present it appears that there are only about 600 lieutenants available for the active service of the fleet, a number far too small. With respect to the amalgamation of the lists rendering promotion slower, it might be remedied by retiring the senior 50 from the commanders' list, which would more than compensate for the addition made to the lieutenants.

Of second masters, 215 have been promoted to masters during the last 10 years, or at the rate of 21½ annually.

The list of second masters has decreased in the last 10 years from 165 to 76.

The entry of second masters in the last 10 years has been	-	23
The entry of acting second masters and masters' assistants	-	430
TOTAL	- - -	453

Of this number 200 have died, resigned, or have been dismissed: viz., 65 second masters, and 134 acting masters, and masters' assistants.

To the latter number of 134 must be further added 80 or 85 masters' assistants whose names have disappeared from the records, leaving as only attached to the service, of 430 entered within the last 10 years the existing number of about 215 (or at the rate of 21½ entered annually, that have proved effective) to be provided for.

It appears by the Navy List of 1st January, that there are about 90 second masters and acting second masters, which, probably, would be reduced to 60, to be added to the list of sub-lieutenants. There are also about 250 masters' assistants, which would perhaps be reduced to 200 or less, to be added to the lists of cadets and midshipmen.

It would be well to seize every opportunity of sending the masters' assistants and second masters to a training vessel to learn navigation, with the pilotage of the Channel, North Sea, and coasts of the United Kingdom.

But while disposing of the present list of masters, I consider that it would be most desirable to begin at once the introduction of navigating lieutenants for the main executive line of the service; and I would propose—

1. To allow a certain number of lieutenants, say 30, of not less than one year nor exceeding three years in seniority, to volunteer forthwith as navigating lieutenants. The preference to be given to those who have passed the five yearly examinations.

2. They should, as a preliminary, be required to go to the Naval College for six months, during three months of which time half the number should embark on board a training ship, in order to acquire some knowledge of the pilotage of the Channel, North Sea, and Irish Sea, and some surveying. At the end of six months they should be required to pass an examination in navigation and nautical astronomy, and in the following subjects:—

On making passages in general and on pilotage, according to the places they may have visited;

The use of charts, the taking of departure, the fixing a ship's position by angles to the shore and by the heights of mountains; and the use of a station pointer;

On the variation of the compass, on local deviation and its change according to change of latitude and longitude, both in wood and iron ships;

On the general currents of the ocean, and the special currents of the stations on which they may have served;

On tides generally; and particularly on the turn of the tide-streams around the British Isles, with reference to the times of high and low water by the shore;

On a knowledge of the fixed stars and planets, and of the times of their rising, setting, and coming to the meridian in different parts of the world;

On trade winds, monsoons, hurricanes, and typhoons: the general laws by which the latter are governed, and the mode by which they may be avoided in both hemispheres.

I think this is a case in which the examination should be competitive, as it is desirable to get the best men for this honourable and responsible post, and that the 20 seniors should at once be appointed as navigating lieutenants to sloops.

3. As a general rule, the navigating lieutenant should not be left as commanding officer of the vessel in harbour, nor should he interfere with the discipline of the ship; yet out of pilotage waters he would, probably, in a small vessel, have to keep night watch; and at sea and in harbour he should attend to gunnery, that he may not deteriorate in efficiency as an officer of the regular executive line of the service.

4. The navigating lieutenant should be required to have certain nautical instruments, always to be maintained in good working order, and for this purpose he should receive a small addition to his pay, say 2*s.* 6*d.* a-day. After three years' active service in a sloop he should pass an examination for a ship of large draught of water in surveying and in pilotage of the stations on which he has been employed; and after six years' service should be eligible for an appointment to a line-of-battle ship. After nine years' efficient and continuous service he should be promoted to the rank of navigating commander.

It will be understood that the adoption of the navigating duties will not be a bar to promotion for distinguished service, or through the usual channels, at any period of the navigating officer's services.

NAVY (TURRET SHIPS).

RETURN to an Order of the Honourable The House of Commons,
dated 14 May 1866;—*for*,

"THAT there be added to the RETURN of the CORRESPONDENCE relative to NAVY (TURRET SHIPS) between the Admiralty and Captain *Cowper Coles*, and of the PAPERS relating thereto, ordered upon the 8th day of March 1866,—

"Continuation of the CORRESPONDENCE from the 19th day of January 1866 down to the latest Date:"

"Full COPIES of Captain *S. Osborne*'s Two REPORTS, dated the 1st day of August, and the 15th day of October 1864:"

"The Two SKETCHES, A. and B., referred to by Admiral *Spencer Robinson* in the last Paragraph of his Letter, dated the 13th day of July 1865:"

"COPIES of the LETTERS referred to in the Marginal Note, page 158 of the Return:"

"And, of the DRAWING referred to by Captain *Cowper Coles* in his Letter of the 29th day of November 1865."

Admiralty,
3 July 1866.

JOHN HENRY BRIGGS,
Chief Clerk.

(*Mr. Corry.*)

Ordered, by The House of Commons, *to be Printed*,
6 *July* 1866.

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NAVY (TURRET SHIPS).

CORRESPONDENCE between the Admiralty and Captain *Cowper Coles*, and PAPERS relating thereto.

— I. —

CONTINUATION of the CORRESPONDENCE from the 19th day of January 1866 down to the latest time.

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Captain *Coles* to the Secretary of the Admiralty.

Sir, Ventnor, 24 January 1866.

WITH reference to your letter of the 19th instant, acquainting me that I am not to be consulted on the design of a sea-going turret-ship (which their Lordships had promised I should be), because their Lordships did not approve of a letter bearing my signature, which had appeared in the "Standard" of the 10th and 12th instant, in answer to an article in the "Times," and stating that their Lordships had before disapproved of the course pursued by me with reference to my publications, I deeply regret that their Lordships should have taken so serious a view of that reply; and I also beg to point out to their Lordships that I have never received any intimation of their disapproval of my writing in the public journals on the subject of cupola ships, since my agreement with the Lords Commissioners of the Admiralty for the use of my invention, dated 7th August 1862, in which will be found the following paragraph; "But the said Cowper Phipps Coles is to have free liberty, by means of lectures, models, publications, and otherwise, to prove the great utility, value, and economy of his invention of shield ships, by way of diffusing and extending the reputation thereof, and to show the value of the same, and the numerous ways in which it may be used, worked, and extended for sea-going ships, coast defences, and otherwise."

The above paragraph has probably escaped their Lordships' recollection, otherwise I am sure that they would not visit me with their serious displeasure without any warning, for exercising the right of free publication which their Lordships actually conceded to me under the solemn provisions of a legal agreement.

Under these circumstances, and bearing in mind that my letter was written to publicly vindicate my invention against attacks in the press, I cannot but hope that their Lordships will be pleased to reconsider their decision.

W. G. Romaine, Esq., C.B.,
&c. &c. &c.

I have, &c.
(signed) *Cowper P. Coles.*

The Secretary of the Admiralty to Captain *Coles*.

Sir, 26 January 1866.

I AM commanded by my Lords Commissioners of the Admiralty to acknowledge the receipt of your letter of the 24th instant.

My Lords have already acquainted you, in their letter of the 19th instant, with the grounds on which they had decided to discontinue your employment in connection with the Controller's Department. My Lords have no desire to deprive you of the right of free publication conceded to you by the clause in the agreement which you quote; you did not, however, confine your publications to advocating your views and advancing the interests of your inventions, while your repeated attacks on the officers of the Controller's Department could no longer be permitted without injury to the public service.

My Lords, therefore see no reason to alter their decision communicated to you on the 19th instant.

Captain C. Coles, R.N.,
Madeira Villa, Ventnor.

I am, &c.
(signed) *W. G. Romaine.*

Captain *Coles* to the Secretary of the Admiralty.

Sir, Ventnor, 30 January 1866.

I HAVE the honour to acknowledge the receipt of your letter of the 26th, containing their Lordships' decision, that I should not be further consulted in the construction of cupola ships for our Navy. I will now refrain from reverting to the past, beyond reminding their Lordships that the allowance, which they have stopped, was given to me as part remuneration for my patent.

It is to be regretted that, after toiling for many years, and having sacrificed so much to bring my invention to its present successful issue, their Lordships should take from me all supervision, and transfer that invention to its opponents, upon the ground that I have overstepped the free right of publication in defence of my invention; more particularly, as, in my letter of the 16th instant enclosing one which I prepared for the press, I concluded by saying, "Should their Lordships think that I have overrated the arguments in favour of turrets, *or wish for any correction*, I shall have great pleasure in considering their views."

I would further beg to remark that, irrespective of my agreement, and being the exponent of my own invention, I consider that, as a naval officer on the half-pay list, and a British subject, I was fully justified in criticising and comparing broadside vessels with those on my system.

My communications with the press have been on public grounds alone, being deeply impressed with the great national importance of the question.

At the same time, I do not hesitate to reiterate my regret that, whilst defending my invention, and unavoidably making a comparison and criticism of the rival system, I should have been misunderstood as meaning to attack or to reflect on the officers of the Controller's Department.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C. B.,
&c. &c. &c.

The Secretary of the Admiralty to Captain *Coles*.

Sir, Admiralty, 7 February 1866.

I AM commanded by my Lords Commissioners of the Admiralty to acknowledge the receipt of your letter of the 30th ultimo.

With reference to the first paragraph of your letter, in which you state that, "the allowance, which has been stopped, was given you as part remuneration for your patent," my Lords desire me to refer you to the words of the agreement, which are that you "shall and will at all times, during the residue of the said term of 14 years, when required by the said Commissioners, their successors in office and assigns, give to them your services with reference to the said invention, upon being paid at the rate of 3 *l.* 3 *s.* a-day while you are so employed, and being allowed all travelling expenses incurred by you in such employment, such sum of 3 *l.* 3 *s.* a-day to be inclusive of your pay for the time being."

With reference to the rest of your letter, my Lords have nothing to add to their answers to your former letters.

I am, &c.
(signed) *W. G. Romaine.*

Captain Coles, R.N.,
Madeira Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Sir, Ventnor, 21 February 1866.

WITH reference to the subject of your letter of the 7th instant, and of my reply of the 10th instant, I beg to enclose the copy of a letter which I have received from Mr. Davidson, who acted for me in the negotiation for the sale of my patent to the Admiralty.

I do not question the power of their Lordships to discontinue my employment, but I revert to the matter for the purpose of observing that, as the right of free publication claimed by me, whether rightly or wrongly, was claimed on the exceptional grounds of the right having been reserved to me by the agreement for the sale of the patent; so the appointment which I held was also held upon the exceptional ground of its having also formed a part of the consideration, which induced me to enter into that agreement.

I trust that it is hardly necessary that I should add that, in the correspondence that has taken place, I felt that my position was not that of a naval officer, as such, debating any point with their Lordships, but of one party to an agreement explaining and defending that construction of the agreement which he believed it to bear.

I sincerely regret their Lordships' disapproval of my letters of the 10th and 12th of January; and, if in those letters there are any expressions which their Lordships deem to be personally disparaging to any officers of the Controller's Department, as I have already in this correspondence disclaimed any intention of personally attacking those officers, I can only further say that I deeply regret that any such expressions should have been used; and if I had distinctly understood the strong objection which I have now reason to believe their Lordships feel to any communication by me to the newspapers, I should have been willing, in deference to their Lordships' wishes, to have abstained from exercising in that way the right of free publication, which I believed that I possessed.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C. B.,
&c. &c. &c.

(Enclosure.)

18, Spring-gardens, London, S.W.,
20 February 1866.

My dear Sir,

I HAVE read Mr. Romaine's letter of the 7th and your reply of the 10th instant.

I conducted, on your part, the negotiation with the Lords of the Admiralty on the occasion of your parting with your patent, and, beyond all doubt, the 3 *l.* 3 *s.* per day was part of the consideration given you.

The agreement was worded as it stands to meet the case of the invention turning out a failure; but in the event of success it was understood the 3 *l.* 3 *s.* would be continued to you during your patent. An objection having been raised during the negotiation to the 3 *l.* 3 *s.* per day, I find, on referring to my memoranda, that I received your instructions to decline, and that I did decline, to part with the patent unless the 3 *l.* 3 *s.* per day were definitely given. I see also, at one time during the negotiation, you asked a larger sum in gross, which was afterwards changed into the sum ultimately given, with the addition of the 3 *l.* 3 *s.* a-day. At the time of this negotiation you had offers from mercantile firms more advantageous in a pecuniary point of view, but which would have involved your giving up the service; and you were, as I understood, to some extent influenced in your acceptance of the Admiralty terms by the prospect of the employment which you understood you were to receive during the success of the invention, of which you never entertained a doubt.

Under the agreement, the Admiralty have the power legally to discontinue your services and stop the 3 *l.* 3 *s.* per day, but the spirit and intention of the agreement was as I have stated.

I am, &c.
(signed) *F. G. Davidson.*

Capt. Cowper P. Coles, R.N.

The Secretary of the Admiralty to Captain *Coles.*

Sir,
Admiralty, 22 February 1866.

I HAVE received and laid before my Lords Commissioners of the Admiralty your letter of the 21st instant, and I am commanded by their Lordships to acquaint you that they have already, in their letter of the 7th instant, informed you that the agreement entered into with you on the 7th August 1862, plainly shows that the pay and allowances therein stipulated for were to be remuneration for your services when employed; and the terms were expressly introduced into the agreement, in order to prevent questions as to intention, and doubts as to what was understood, from arising on either side.

My Lords have further informed you, that they did not object to your publications as long as they were confined to proving "the great utility, value, and economy of your inventions and shield ships, and to diffusing and extending their reputation," without personal attacks on the officers with whom it was your duty to co-operate for the public service.

My Lords are willing to accept your expression of regret at conduct which they have been obliged to take such serious notice of. My Lords will have no difficulty in replacing you in the employment on which you were engaged, on your simply undertaking to conduct the advocacy of your invention, in accordance with the true intent and meaning of the agreement made with their Lordships, and without attacking the officers of this department. As long as you carry on your duties in an officer-like manner, and in a spirit of cordial co-operation, you will receive every encouragement and assistance from their Lordships, and the Controller's Department.

I am, &c.
(signed) *W. G. Romaine.*

Captain C. P. Coles, R.N.,
Madeira Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Sir, Ventnor, 28 February 1866.

I HAVE the honour to acknowledge the receipt of your letter of 22d instant, in which you state that their Lordships will have no difficulty in replacing me in the employment on which I was engaged, on my simply undertaking to conduct the advocacy of my invention, in accordance with the true intent and meaning of the agreement made with their Lordships, and without attacking the officers of the department; and, after the explanation which I have had the honour to submit for their Lordships' consideration, I have no hesitation in giving them this assurance.

I think it, however, the more respectful course towards their Lordships to take this opportunity of stating that, if my employment were to be considered as indicating of necessity my approval, or of rendering improper the expression of disapproval, of any designs for sea-going turret-ships which I might consider not calculated to give that system a fair trial, I should be placed in so embarrassing a position that I should be constrained to apply to their Lordships to be allowed to relinquish the appointment.

I have, &c.

W. G. Romaine, Esq., C.B.,
&c. &c. &c.

(signed) *Cowper P. Coles.*

The Secretary of the Admiralty to Captain *Coles*.

Sir, Admiralty, 1 March 1866.

I HAVE received and laid before my Lords Commissioners of the Admiralty your letter of the 28th ultimo, and I am commanded to acquaint you that the Controller of the Navy will be instructed to afford you every facility for examination of the design of the proposed cupola ship, "Monarch"; and you are at liberty to make any observations and suggestions thereon to their Lordships, which you may think fit.

Your employment by this department will re-commence from this day's date.

I am, &c.

Captain Cowper Coles, R.N.
Madeira Villa, Ventnor.

(signed) *W. G. Romaine.*

Captain *Coles* to the Secretary of the Admiralty.

Sir, Ventnor, 17 April 1866.

IN compliance with your letter of March the 1st, in which you informed me that the Controller of the Navy would be instructed to afford me every facility for the examination of the designs of the proposed turret-ship "Monarch," and that I was at liberty to make any observations or suggestions thereon to their Lordships, I have the honour to observe, with reference to the designs of the "Monarch," which have only in part been submitted to me, and the restricted information thereon.

The great point which remains to be further developed in my invention is, its enabling the heaviest ordnance that would destroy any iron-clad in existence to obtain an all-round fire, and being efficiently carried on a minimum beam and tonnage, with a maximum speed, at the same time showing the minimum area above the water-line to be plated, that can be given to ensure safety to the vessel at sea, and render her habitable for the crew in all climates.

Keeping the above consideration in view, I would remark, that the Americans, in this feature of showing the least possible area of vessel, as a mark to be fired at, have gone to the extreme, the monitors presenting not more than two feet side above the water; but we know even that these vessels, with proper precaution, are sea-worthy; they have weathered heavy gales of wind at anchor and at sea, and we now hear the most favourable account of the sea-going qualities of the "Monadnock" up to the time of her arrival at Monte Video on her way round to the Pacific.

This

This excessive lowness cramps the monitors for room below, and obliges their turrets to be wholly above deck, exposing a height of from nine to ten feet of turret to be aimed at; whilst the plan hitherto suggested by me, and adopted by the Admiralty, exposes only half the turret to view, some five or six feet above the deck, much reducing the area of turret exposed to direct impact from a projectile, and at the same time enabling the free board of the vessel to be higher, varying in proportion to the vessel's beam, length, and tonnage, providing good light, comfort, and wholesome accommodation.

I have several methods by which this may be accomplished, at the same time carrying the turrets at various heights above the water, as may be required; but in the present instance, I will content myself by showing that it may be done by the application of the first plan I proposed, that of placing the turrets as close together, and as near the centre of the vessel as possible, at the necessary height out of water, with an all-round fire over a flush deck; the base of the turret being protected by a central case, or turret room, plated up to the upper deck. This plan is, I see, to a certain extent, adopted in the "Monarch," but I find she is to be a vessel of 5,099 tons burthen, the centre of metal of her turret guns would be 17′ 1″, out of water, at deep load draught, and the all-round fire from her turrets she is deprived of. (*See accompanying Plan, No.* 1.)

I also find that the fine ends of this vessel are heavily plated with armour above the belt, apparently for the protection of her bow and stern guns, with which I find she is supplied, I imagine, with an intention of obtaining the fore and aft fire of which the turrets have been deprived, by a top-gallant forecastle, and standing bulwarks abaft.

Allow me here to observe, that in designing this ship, one of the chief merits of the turret system, that of firing right ahead with her heaviest ordnance, appears to have been discarded, and the broadside plan substituted by weighting the ends with guns and armour so antagonistic and fatal to sea-going qualities and *high speed.*

The necessity of carrying bow and stern guns in broadside ships, to enable a fire in the line of keel to be obtained, has been the great difficulty with which the naval architect has had to contend, preventing his giving to his vessel the best form of bow for high speed, and dividing the sea, at the same time retaining the power of ramming.

The bows of a turret-ship should have been flammed out to ensure buoyancy when steaming head to wind. It is therefore evident, that weighting the bows of a turret-ship with heavy armour or guns, and receding the bow, is merely applying to the turret system one of the greatest objections inherent to the broadside, which the turret being free from, is one of its chief recommendations.

I do not know what object there can be in placing these heavy guns in bow and stern of "Monarch," beyond using them as chase guns, but I would remark that 100-pounders would have little or no effect against really good iron-clads; and that for service against boats or wooden vessels, lighter and more manageable guns that could be transported to any part of the upper deck, or even be placed on the top of the turrets would be preferable, and far more serviceable.

By the present arrangement in "Monarch," the fore and aft fire of the 600-pounders is lost, and you gain no equivalent; I therefore would suggest light bow and stern chaser pivot guns upon suitable carriages for transporting, which would be kept before the foremast, and abaft the mizen-mast, so as not to interfere with the fire of the 600-pounders in a line with the keel.

The pilot house, I see, has been placed before the foremost turret instead of abaft it, as in "Royal Sovereign," "Prince Albert," and all other designs with which I have had anything to do, thereby preventing the direct fire of the turret guns right ahead, whilst I do not see any equivalent advantage to be gained.

I notice it is spoken of as a means of getting in and out of the central battery or turret chamber; I would point out that any traffic through the pilot house would greatly interfere with the important duties of conning the ship in action, causing confusion, and perhaps the loss of an engagement; the pilot house should be kept sacred, and placed abaft the foremost turret as in "Royal Sovereign," where it is greatly protected by the foremost turret and funnel, and has the advantage of not being distinguishable to be aimed at, which I think is of the greatest importance. (*See* sketch No. 2.)

I beg to propose that this bow and stern armour above the belt should be abandoned, thus relieving at once the extremities of the ship of 118·5 tons dead weight, besides the weight of the forecastle's 13 tons.

The guns in the turrets now being 17 ft. 1 in. from the water, I would reduce their height to 15 ft. 1 in.; by this I take off two feet of armour-plating all round the belt and central battery, which, taking the mean of weight given me as allowed for defensive power (455·5 lbs. to the square foot) would reduce the weight 326·5 tons; when I find the ship would be relieved of the following weights (*see* sketch 1, 2, and 3):—

Bow and stern armour and backing - - - -	118·5.
If cut down 2 feet, leaving a free board of 12 feet - -	326·5.
Forecastle - - - - - - - - - -	13·
Total - - - -	458·

Irrespective of the other advantages before enumerated, having reduced the weights to be carried by 458 tons, the following questions arise:—

1st. As to whether the ship should be reduced in her general dimensions, when there would also be a proportionate saving of weight in hull, about 70 tons, to every 100 tons of builders' measurement; when the height of gun out of water could also be reduced, for I consider 15 ft. 1 in. would be the maximum; consequently, it would produce a vessel considerably smaller, cheaper, and requiring less crew.

2nd. With this reduction of 458 tons dead weight, chiefly towards the ends, whether if the tonnage is decreased, the beam only should be reduced, and not the length, when finer lines could be given, ensuring better results in speed and sea-going qualities.

3rd. Whether this superfluous weight of 458 tons, which can be taken from the "Monarch" should be absorbed by putting another turret in her, when she would have a broadside of six 600-pounders, throwing 3,600 lbs. weight of projectiles; but as this broadside would be so much in excess of any ship built, or likely to be built, that at the present time I would prefer the extra speed which might be obtained. I must, therefore, most respectfully, but earnestly, record my opinion that a sea-going turret-ship should not be loaded with the bow and stern weight as proposed in the "Monarch"; that her turrets should not be deprived of the fore and aft fire, and that it is disadvantageous and unnecessary to add to her tonnage by giving her guns the unprecedented height of 17 ft. 1 in. out of water, tending to make her top-heavy, and to labour heavily in a sea-way. A good sea boat does not altogether depend upon height out of water, but upon form, and the extremities of the ship being kept light in proportion to their displacement.

I have made the foregoing observations and suggestions under the disadvantage of the limited information I have received, and without the services of a draughtsman whose assistance I had applied for. My strong desire to assist in this important matter has not allowed these difficulties to stand in my way, although I have not been able to enter so fully into the matter as I should wish, and I would respectfully beg their Lordships to believe that if I am not freely to ask for, and receive information, I may find hereafter that I have come to erroneous opinions from not having understood the designs; however, I think their Lordships will see that the "Monarch," as now designed, cannot be said to represent my views of a sea-going turret-ship, nor can she give my principle a satisfactory and conclusive trial.

In conclusion, I beg to observe that as soon as I receive the plans of the decks, holds, or other information, I will furnish their Lordships with any further remarks or suggestions I may have to make; but I hope that their Lordships will grant me the necessary assistance and information to enter fully and satisfactorily into the details collateral with the turret system.

I have, &c
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C.B.
&c. &c. &c.

Drawings enclosed.

1. " Monarch," as she is.
2. " Monarch," as suggested.
3. Midship section, showing height of guns.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 24 April 1866.

I HAVE received and laid before my Lords Commissioners of the Admiralty your letter of the 17th instant, and I am commanded by their Lordships to acquaint you that they have had before them the correspondence which has passed between you and the Controller of the Navy, relative to the design for H.M.S. " Monarch." You have stated, after receiving from the Controller the fullest information that it was possible to give you, that the " Monarch " will not represent your views of a sea-going turret-ship. The objections stated in your letter apply chiefly to those features of the design which are inseparable from the conditions laid down by my Lords in their instructions to the Controller, and to give effect to your proposals, it would be necessary for their Lordships to abandon conclusions deliberately arrived at, and to substitute for the " Monarch " an entirely new design.

My Lords are not prepared to take this course; they believe that the " Monarch " will afford the means of ascertaining the advantages or disadvantages of central armament in a sea-going ship; and the Controller will be directed to proceed with her construction as designed.

The Controller will be further informed that my Lords do not consider that any practical advantage would be derived from further discussing with you the general features of the ship, and that he is to confine himself in his communications with you to those points which bear on the efficient working of the turrets. You are, therefore, requested to return to the Controller the drawings that have been sent to you. As, however, in your letter of the 3d instant, you expressed your readiness to design a ship with two turrets, and you have now stated that you have several methods by which the desired objects may be attained, my Lords will give you the opportunity of reducing to practice your own views of what a sea-going turret-ship should be, and they will authorise you to put yourself in communication with any of the firms named in the accompanying list, and to submit a design for a sea-going ship to carry not less than two turrets; should my Lords be able to approve the design, and should they receive from the firm selected such a tender as they would feel themselves justified in accepting, they would then propose to Parliament that provision should be made in next year's Estimates for building such a vessel by contract. Should it be found inexpedient to enter into such a contract, my Lords would defray the expenses incurred in preparing the designs.

My Lords have only further to add, that they consider it indispensable that in any sea-going turret-ship, provision should be made for the efficient protection of the vital parts of the ship from heavy shot; for the health and comfort of a crew sufficient in number, not only to work the guns and to handle the ship with ease, but to keep her in the order required for an efficient ship of war; that she should have sufficient speed; and that she should possess the sea-going qualities of a good cruiser.

I am, &c.
(signed) *W. G. Romaine.*

Captain C. Coles,
Medina Villa, Ventnor.

List of firms which may be communicated with as regards the design of a two-turret ship:

The Thames Iron Ship Building Company.
Messrs. Samuda.
The Millwall Iron Works Company.
Messrs. Wigram.
Messrs. Laird, Birkenhead.
Messrs. Palmer, Newcastle.
Messrs. Napier, Glasgow.

Captain *Coles* to the Secretary of the Admiralty.

Sir, Ventnor, 29 April 1866.

I HAVE the honour to acknowledge your letter of the 24th instant, containing their Lordships' directions on various points, which shall receive my immediate attention.

As regards the design of the "Monarch," on which as a means of testing the advantages of the turret system in a sea-going ship, their Lordships have already given me an opportunity of stating my unfavourable opinion, I will only further say that as she is to be built, I trust she will prove as great a success as their Lordships may desire.

I return by this post the drawings to the Controller.

I am, &c.
W. G. Romaine, Esq. C.B. (signed) *Cowper P. Coles.*
&c. &c. &c.

P.S.—A short absence prevented my receiving your letter until yesterday.

Captain *Coles* to the Secretary of the Admiralty.

Cranmers, Mitcham, Surrey,
Sir, 8 May 1866.

WITH reference to your letter of the 24th ultimo, in which you inform me that their Lordships would give me the opportunity of reducing to practice my own views of what a sea-going turret-ship should be, and that they authorised me to put myself in communication with any of the firms named in the list which accompanied your letter, and to submit a design for a sea-going ship, to carry not less than two turrets; I have now to state further, for their Lordships' information, that I have, in accordance with the authority so given me, put myself in communication with Messrs. Laird Brothers, the builders of the greater number of the turret-ships now afloat, and that those gentlemen are disposed to co-operate with me in carrying into effect their Lordships' directions. I am under the impression that there exists some official or other record of the objections made to the two-turret-ship, designed by Mr. Barnaby of the Controller's Office, and embodying my views, in 1863; and if so, it would seem to be desirable that I should now be furnished with a copy of any such document, so as to enable me to consider those objections, with the view of obviating them.

As I shall have to supply Messrs. Laird with the drawings of the turrets, and other points incidental to the turret system, will you favour me with their Lordships' directions, whether I am to have the services of the same Government draughtsman (Mr. Tarring) as before, or whether I am to employ my own private draughtsman.

I am, &c.
W. G. Romaine, Esq., C.B., (signed) *Cowper P. Coles.*
&c. &c. &c.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 12 May 1866.

I HAVE received and laid before my Lords Commissioners of the Admiralty your letter of the 8th instant, and I am commanded by their Lordships to express to you their satisfaction at your having placed yourself in communication with Messrs. Laird Brothers, who are willing to co-operate with you in designing and constructing a vessel, to carry not less than two turrets, and to embody your views of a sea-going turret-ship.

With reference to your request to be supplied with any record of objections made to the vessel designed by Mr. Barnaby, and embodying your views in 1863, I am to refer you to the enclosed copies of a letter, addressed to you by the Controller of the Navy, on the 20th of March in that year, and its enclosure on the subject, to which no reply was received; and I am to add, that no further "record of objections" is in their Lordships' possession.

In reply to the last paragraph of your letter, I am to inform you that my Lords consider it advisable that Government draughtsmen should not be employed on the design of the ship now proposed to be submitted for their approval, as such a course might perhaps involve a division of responsibility, which it is their wish should be completely avoided.

My Lords apprehend that should they feel themselves justified in accepting the tender to be made for the construction of the ship, the expense of preparing the requisite drawings, &c., will be included in her contract price; if, on the other hand, such tender be declined, the cost of designs &c., will be defrayed by this department, as stated in my letter of the 24th ultimo.

I am, &c.
Capt. C. P. Coles, R.N. (signed) *W. G. Romaine.*

— II. —

Full Copies of Captain *S. Osborne's* Two Reports, dated the 1st day of August and the 15th day of October 1864.

Report of Trial of Ship.

Her Majesty's Ship "Royal Sovereign,"
Portsmouth Harbour,
1 August 1864.

Sir,

In obedience to your orders of the 23d ultimo, I now proceed to report in detail the results of the recent trial of Her Majesty's ship under my command.

2. On Tuesday morning, 26th July, the ship being at anchor in St. Helen's Roads, and the steam down, I commenced by teaching the crew how to clear the ship for action, let down the bulwarks, &c., and then exercised at general quarters with the accustomed beat of the drum and one roll. From that I proceeded to fire single turrets with blank cartridges of 20 lbs. right abeam, the gun horizontal.

The width of deck fired over was 18 feet, and I left the large bulls' eyes in the deck, to test their security under fire.

Firing blank cartridge.

After this, we fired another reduced charge horizontally from the second turret, trained 20° abaft the beam, placing crockery and glass on the lower mess tables under the line of fire, as well as full buckets of water upon the top of the turret to test the concussion.

A round was then fired horizontally, with blank cartridge, and 38° of training aft, over 26 feet of deck, and including several bulls' eyes.

No effect below from concussion.

3. The result of the forenoon's experiments was most satisfactory. The concussion on the lower deck was hardly perceptible.

No concussion within turrets.

Within the turrets, the concussion and smoke upon discharge were found to be far less than is usually the case in broadside ships.

Upon the turrets, the water was not even thrown out of the buckets, and we found we were able to stand there in perfect ease and safety.

Decks do not suffer, and the screw bulls' eyes stand the explosion very well.

The deck showed no signs of starting, and even the large bulls' eyes unexpectedly remained perfectly secure.

There was no sign of fire, although I purposely refrained from wetting the upper deck, and the scorching of the deck was so slight, that a holystone quickly removed it.

Small recoil of guns.

The recoil of the guns was insignificant with reduced charges, not more than 3½ inches with the compressors quite slack.

4. Tuesday afternoon.

Iron cap scuttles over the hatchways require strengthening.

We beat to quarters, and loaded at once with reduced charges, testing the fore turret at angles of training, horizontally, as high as 66½° before the beam, and should have continued to increase the angle until we fired right ahead, but that the cap scuttles over the hatches showed weakness, and I was unwilling to risk further injury to them. I recommended that they be made heavier and stronger, with different fastenings.

5. Having satisfied myself that there could be no risk to the decks, bulkheads, or engines by the fire of the turrets, we next loaded with full charges of 35 lbs. and solid shot, and fired horizontally, as well as with 5° elevation; single guns, and then in pairs; and subsequently with different angles of training over the decks.

Trial of full charges (35 lbs.).

The general result was excellent; the turret crews and men on the lower deck were delighted at the absence of concussion and smoke, whilst on deck no damage whatever was done beyond a slight injury to the leather flaps immediately under the muzzles, from the flash of the guns. This was at once remedied by the temporary application of a piece of boiler plate as a flash pan.

Defect in leather flaps remedied.

6. The steam was up during the afternoon, but no injury to boilers or engines occurred; indeed, it was not likely, as the concussion was much less than would have taken place had the ship fired a broadside in her ancient character of a screw line of battle ship.

No injury to boilers or engines.

We fired this day 22 rounds in all, and tested the depression to the extent of 3°; but I did not see any use in continuing to depress, as the reduced charges hardly threw the shot 50 yards from the ship when the guns were even laid horizontal. The recoil of the guns with the full charge of 35 lbs. was of course greater than with the 20 lb.-charge, but they never came in to a taut breeching, and the compressors worked very well; the men rapidly acquiring confidence and skill in the management of the guns.

With low charges, 3° depression is ample.

Recoil with full charges moderate.

7. On the 27th July, the ship at anchor.

We commenced exercise by firing in quick time, three rounds of blank cartridge, reduced charge (20 lbs.); firing first abeam, then 22° before, and then 22° abaft the beam. After that, we fired full charges (35 lbs.) with shot from all turrets, at various degrees of elevation and training. The 4th or after turret was fired with 58° of training abaft the beam, over my skylight apertures.

Trial of full charges with shot.

The iron cap scuttles showed exactly the same defect as in the fore end of the ship; for although the screwed bulls' eyes stood well all concussion, the tops of the cap scuttles came off.

After cap scuttles show weakness.

The slight wooden jalousies of the iron water-closets, abaft, likewise dropped out, as was to be expected; they must be made moveable if those constructions are not placed elsewhere.

8. It is remarkable that when firing at a great angle aft, the concussion acted upon the deck trigger of the life-buoy, exactly as if a person had pulled it, and the life-buoy fell overboard, but was recovered and replaced; a button over the trigger will be applied in future.

9. In the afternoon we commenced to practise with full and distant charges at targets placed 1,000 yards distant. The sights used on the turrets, in conjunction with the side scales attached to the guns, were soon understood by the officers and captains of turrets, and the precision of aim was very striking, but I should strongly advise that all turret-ships be fitted with an instrument for measuring distances, attached to the pilot house. With it, and the perfect control the captain of such a ship now possesses over his guns in action, the precision of fire would be very great. I have ordered, at my own cost, an instrument called a telemometer, invented by Mr. Adie, for this purpose, and hope shortly to be able to report upon its efficiency.

Target practice with 35 and 40 lb.-charges.

Efficiency of the sights.

Precision of fire.

10. After some practice, I fired a converging broadside at a target six feet high, with a flag a yard square on it, and destroyed it.

The first converging broadside.

11. Throughout this day's work no damage to deck or bulwarks took place.

No injury to deck or bulwarks.

The tops and sides of the hen-coops started from concussion, owing to their being nailed instead of being screwed; the poultry, however, did not suffer—a pretty good proof, in my opinion, of the slightness of the shock; indeed, I was standing upon one of the coops when the nails started, and experienced no great inconvenience. The broadside had little, if any, effect below, and no glass, crockery, or cabin bulkheads were injured; indeed, we now ceased to take any precautions, either between decks or in the turrets, to meet concussion; and instead of putting all skylights below, as was originally intended, Captain Coles,

Hen coops suffered, the poultry did not.

Simultaneous broadside caused no injury.

Glass of skylights fell out to-day and broke.

and I thought it desirable to see if they could not be stowed between the turrets upon the upper deck in action. That was not found to answer, and the glass in all the skylights suffered to-day in consequence. The concussion first caused the putty to fall out, and then the glasses in some cases broke; a different description of skylight, which can easily be made, will meet this difficulty.

12. We fired 57 rounds on this day, of which 42 rounds consisted of 35 or 40 lb.-charges. The decks were marked by unexploded powder, but neither wood, pitch, nor oakum had been injured. The bulls' eyes on deck answered admirably, and the meals of the ship's company and officers were prepared as usual, although we had been at quarters all day.

Testing machinery and pumps after practice; all found perfectly sound.

13. July 28th. We weighed with steam capstan and proceeded to sea, to test the machinery after practice, as well as to see if any injury had occurred from concussion to any of the numerous pipes, which are spread all over the interior of the ship, from pumps, water-closets, &c.

Her Majesty's visit to the ship.

The capstans worked well, but the want of swivels in the cables is a serious objection. The testing of the machinery and ascertaining certain points as to the angles of safe training of the turrets for exercise and action, occupied the forenoon; and in the afternoon we were employed receiving visits from Her Most Gracious Majesty, His Royal Highness Prince Louis of Hesse, and several of Her Majesty's Ministers.

The ventilation on the lower deck in action is found to be very tolerable. The turrets clear themselves of smoke quickly, but the cockpits and centre of stoke-hole are close.

Trial of guns and turrets at sea. Ship at speed.

14. On Friday, the 29th, we steamed out into the Channel about 20 miles off St. Catharine's Light. The water was smooth, and the ship only rolled 5° each way, when laid beam on to what little swell existed. She promises, however, to be more lively when steaming head on to sea, than I expected, if not forced at full speed.

Alterations advisable on fore part of deck.

I should, however, prefer that there were fewer hatches, funnels, or apertures in the fore end of the ship. There is ample room for them elsewhere, and by means of the large bulls' eyes which have answered so well on the upper deck, we could light and ventilate the fore part of the lower deck very perfectly. The galley is inconveniently situated, and I would suggest that two smaller ones be fixed further aft, one on each side; one for the crew; the other for officers.

Stanchions round the ship require alteration.

Fewer, but stronger, stanchions necessary.

15. The stanchions for the life-lines round the upper deck are too slight for safety, and too numerous for the range of the guns; they will not, moreover, carry the awnings. I strongly advise that a few strong stanchions be substituted for them, as it would not be safe now to clear for action with the ship rolling heavily in a sea-way; the men would be washed away if sent on deck.

Fired distant, and full charges with shot.

Fired turrets across one another over deck.

16. We cleared for quarters very expeditiously to-day, by beat of drum, "without any rolls," and fired one round with distant charges (40 lbs.) and solid shot, at extreme elevation on the first step, from all the turrets; then fired another round horizontally with full charges (35 lbs.); the result in every case very satisfactory. The three after turrets were now trained in opposite directions towards each other, so that their fire would cross over the deck; that is, No. 2 turret was thrown 40° abaft the beam, and Nos. 3 and 4 turrets before the beam; the guns were loaded with 35 lb.-charges and shot. I did this rather to test the shock to the turrets than to solve any problem likely to occur in actual warfare, for the guns would never be so fired except to repel boarders actually landed upon our deck, and then, of course, reduced charges would alone be used.

No shock experienced within the turrets.

Lowered a gun and fired at 18½° elevation.

Lieutenant Roche's carriage does not

The result was just what Captain Coles anticipated; no shock whatever to the turrets; and the men of one turret were loading whilst the other fired across its face. I took care, of course, to remove everyone from the top of these turrets whilst this trial took place, but I believe the precaution to be unnecessary, as the hammocks in the nettings were not disturbed by concussion. The slide in the 4th turret was now lowered to admit of the gun being given extreme elevation (*i. e.* 18½°). It was then fired with a distant charge, testing severely the slide, turret, and after gearing. Every part stood the shock admirably, and I was astonished at the great range of the shot. In firing the other guns with extreme elevation, upon the upper step of the slide, the turrets all stood equally well; but it was certain that Lieutenant Roche's carriage, as at present fitted, did not admit of an equal amount of elevation with the other carriages, and the gear for raising and lowering the slide in No. 1 turret requires to be altered, and made similar to that in the other turrets. I now exercised quick firing with shot and full charges in No. 1 turret, which has two guns in it. We fired five shot in 15½ minutes, but were then compelled to cease firing, from the crutches for the friction tubes proving defective. These crutches were a constant trouble to us, and I am told by Captain Coles that, some two years ago, he experienced the same defects in those supplied to the guns on board the "Trusty."

admit of sufficient elevation.

Lowering gear of slides.

Tube crutches defective.

Captain Astley Key, of the "Excellent," has, I believe, proposed a remedy for this serious defect; the sooner it is applied the better, for a ship with friction tubes only and defective crutches is in a very helpless condition.

After the weakness shown in the cap scuttles forward, I was unwilling to fire much over them until the necessary alterations had taken place, and, moreover, I was reluctant to blow away the ventilator funnel in the bows; I, therefore, only fired forward at such an angle as could be safely done in exercise, viz., 12°, or about one point from right ahead. On this bearing no damage was done, and the shock did not even inconvenience the cooks in the galley. In actual warfare I should not, of course, hesitate to fire right ahead. If the ventilator was moved aft, as I propose, we might fire ahead under all circumstances.

Reason for not firing right ahead.

Fired one point on the bow.

17. Having this day satisfied myself of the fighting efficiency of the ship, tried the guns on all the points referred to in your letter which were practicable, until the cap scuttles over hatches had been properly fitted, and satisfied Captain Coles, the inventor of this new system, that his conclusions were perfectly sound, and that the trial of our turrets verified the results obtained some years ago on board the "Trusty," I closed the experiments, having fired in all 103 rounds of reduced, full, and distant charges, or an average of 20 rounds per gun.

General results of trial.

18. The glass which had shaken out of my cabin skylights, and the compasses, in the experiment of leaving them on deck, the starting of the bottom planks of one of the boats, and loosening the parts of the hencoops which were nailed, was the only damage done during the three days' practice with the heaviest artillery ever embarked on board a British man-of-war.

Amount of damage done during three days' practice.

19. The experience we have gained touching the strange effect of the concussion of the air upon fixed objects, such as boats landed in crutches, &c., leads me to think that the only safe mode of stowing boats, with such artillery, and large charges of 40 lbs. or 50 lbs. firing under them, is by placing them in a line amidships, over, and independent of, the turrets, and then suspending them in action to short davits fitted upon those skids, an ingenious idea of Lieutenant Knox Leet's, my senior lieutenant; and I trust I may be allowed to stow them on that principle in future.

Effect of concussion upon boats in crutches.

Boats to be stowed in line amidships.

20. The steam pumps were tested on the 29th, and worked satisfactorily, flooding the upper deck easily.

Steam pumps.

21. During the week we have weighed and stowed our anchors five times. The steam capstan was used on every occasion, and answers well; but the want of swivels on the cables is a great hindrance and delay.

Steam capstans.

The need of a compressor is much felt, and I would strongly advise the after controllers to stern cables being done away with, and an ordinary naval compressor being fitted below the deck. The ship, from her small resistance to the sea and wind, "holds her way" in a marvellous manner, and it will always require great care in the management of her anchors and cables to prevent accidents.

Compressors for cables very necessary in addition to controllers.

I have had much experience of Brown's controllers, which are alone fitted here, and have not the implicit confidence in them when they are in the hands of seamen, which the inventor naturally indulges in. We have nearly had two serious accidents owing to them; and working the cables as we do, upon a crowded deck in action, I am anxious to have some compressor in reserve, when a mistake is made with the controllers.

22. Captain Coles' cat and fish davits answered very well on every occasion, and I can suggest no improvement in them. The bulwarks worked quickly and well, in clearing for action, and being replaced; there are, however, many improvements which may be made upon them in future turret-ships. So far as this ship is concerned all that is now necessary is to attach the keys for fixing them

Cat and fish davits answer very well.

Bulwarks are satisfactory.

Keys of bulwarks

not to be fixed to the deck.

them to the deck upon the moveable bulwark, instead of fastening them to the deck, where the fire of the guns blows them away.

Davits should lower down.

Roundhouses.

22. The boats' davits should be made to lower down alongside by a hinge and clamp, as proposed for the "Prince Albert" by Captain Coles; and it would simplify the clearing for action, of such a ship as this, very much, if all the roundhouses were brought amidships as is the case in paddle-wheel steamers, instead of having any over the stern.

Fighting wheel well placed.

Deck wheel unsafe.

23. The steering wheel under the pilot house answers so well that I propose to unship the deck wheel. It is in a very unsafe position, the binnacle is too close to a turret to be useful, and the spare wheel in my cabin renders a third wheel superfluous.

Handiness of ship.

24. The handiness of the ship under steam is very remarkable, and but for the unfortunate circumstance of her great draught of water she would be as handy as a gun boat.

Platform on turrets necessary.

25. The turrets merely need a platform over the top to preserve the screw heads from injury.

Guns very manageable.

26. The guns are perfectly manageable; I only regret they are not rifled ones. The flaws in the interior of the bore appear to be enlarging; I have requested an Ordnance inspection of them. In the single gun-turrets we could easily carry 600-pounder guns, instead of 300-pounders, if they could be made of the same length (12 feet) as our present ones.

Slight Ordnance alterations necessary.

Some of the gun gear requires to be looked to by the Ordnance Department; the levers are awkward and too long. The priming wires are all of them far too short; they only reach one inch within the bore when pressed close down, and on two occasions failed to penetrate the tape on the reduced charges; they should be at least large enough to penetrate three inches into the bore.

Angles of training for exercise.

27. The ascertained angles of training for the guns in the turrets were as follows:—

For Ordinary Exercise with Shot or Shell.

Turrets.	Angle of training.		REMARKS.
	Forward.	Aft.	
First Turret (two guns)	78°	52° Right gun 57° Left gun.	The bearing aft is given for starboard side only; it will be exactly the reverse on the port side.
Second Turret - -	47°	40°	
Third Turret - -	50°	40°	
Fourth Turret - -	40°	75°	

In action the first turret can fire right ahead, and the fourth turret within 5° of right astern, as we should not hesitate to sacrifice the ventilator forward, and the officers' roundhouses would either be unshipped or blown away.

Arrangement of voice tubes good.

Messenger boys necessary.

28. The arrangement of the voice tubes for all parts of the ship, from the pilot house is very perfect; the want of a few active intelligent boys to carry messages was, however, much felt; the more so, that I have no midshipmen nor naval cadets in this ship to act as aides-de-camp.

29. I have now, sir, in this somewhat lengthy report, touched upon all points connected with the efficiency of this ship, so far as it was possible to try her on the late occasion; and have every reason to believe that if the few improvements I have suggested are carried out, the ship will leave this dockyard, on the next occasion, admirably fitted for the defence of the coasts and harbours of Great

Britain, and quite capable, with prudent management and watching the weather, of proceeding from any one port to another upon our coast.

30. Captain Coles has been present throughout the trial, and I believe he is perfectly satisfied with the success of the experiments I have carried out.

I have, &c.
(signed) *Sherard Osborne*,
Captain.

To Admiral Sir M. Seymour, G.C.B.,
&c. &c. &c.,
Commander in Chief.

Admiral Sir *M. Seymour*, G.C.B., to the Secretary of the Admiralty.

"Victory," at Portsmouth,
2 August 1864.

I HAVE great pleasure in transmitting to their Lordships this very satisfactory report of the trial of the "Royal Sovereign."

The alterations proposed by Captain Osborne have been submitted to the respective departments in separate letters.

(signed) *M. Seymour*.
Admiral.

The Secretary of the Admiralty,
London.

FINAL REPORT ON SHIP'S CAPABILITIES.

Her Majesty's Ship "Royal Sovereign,"
Portsmouth, 15 October 1864.

Sir,

As Her Majesty's ship "Royal Sovereign" is now paid off, I do myself the honour of forwarding to you a report, dealing generally with my observations upon the ship, guns, and turrets.

2. Between 28th August and 17th September I was on 10 different days under weigh in the Channel, and tested the vessel in weather ranging from a perfect calm with heavy swell, to a double reefed topsail breeze and a smart sea.

3. On all occasions the ship behaved remarkably well. She is more buoyant than I should have anticipated, very fast, considering how coarse a bow she has, and not wetter than might be expected for a vessel purposely cut down for harbour defence only.

4. Her extreme rolls have been only 11 degrees each way; she has done this about 10 times in a minute; about the same rate, I may observe, as the "Albion" rolled during her first experimental cruize.

5. The great width of the upper deck is a serious defect, but that is purely owing to this ship being a converted vessel; no vessel expressly constructed to carry turrets requires such a deck as we have (some 63 feet in width).

When rolling in a sea-way so wide a deck as ours, with a low bulwark, has an unsecure appearance; and when riding at anchor in bad weather, the drift and wet blow along it in a very trying manner, severely punishing those exposed in charge of the watch; fortunately, however, having no masts or yards, the crew of the "Royal Sovereign" need be little exposed to the weather, except for the "lead" and "look out."

6. The turrets and guns work admirably; we have now fired, in all, 177 rounds, under all circumstances; the rolling of the ship does not affect the evolutions of either turret or gun.

7. The only defects I can observe exist in the carriages being of wood instead of iron; and the necessity of a winch to run the guns in and out with, instead of the old-fashioned tackles; both these defects are in course of being remedied.

8. The aperture cut through the upper deck, to allow the turrets to revolve upon the lower deck instead of upon the upper deck, as in the American monitors, requires to be secured or covered over on a better principle than has yet been adopted. It involves the comfort and health of the crew, owing to the admission of much wet and damp between decks when fighting in a seaway. When not fighting, we cover it over with painted canvas, and render it perfectly secure and safe. It is a mechanical question of a very ordinary character, and can be easily remedied when set about in earnest.

9. To recapitulate. I am of opinion that the " Royal Sovereign," as she now stands, is the most formidable vessel of war I have ever been on board of; she would destroy easily, if her guns were rifled, any of our present iron-clads, whether of the " Warrior," " Hector," or " Research" class.

Her handiness, speed, weight of broadside, and the small target she offers, increase tenfold her powers of assault and retreat; and I believe I see my way to firing by night from a turret with as much accuracy as by day, so long as the enemy is visible.

10. On the other hand, a vessel, raised as she has been, cannot be considered a deep-sea cruizer, or calculated to go to foreign stations, except in emergencies or for special purposes; such, for instance, as when we sent over iron-cased batteries to the Crimea.

11. Vessels like the " Royal Sovereign" are admirably calculated for the defence of the coasts, harbours, and roadsteads of Great Britain. With 12 such converted vessels the fleet might be sent abroad to fight an enemy, and we could feel secure at home come what might; the more so, as any naval officer would undertake to work and fight these vessels if manned by artillerymen, with only a dozen sailors to steer and take the lead.

12. I see no limit to the weight of ordnance which may be worked upon the turret principle; and there are many ways in which the revolving platform, apart from the iron-cased turret, might be applied with the best result to any of our ordinary cruizers, whether of wood or iron.

13. I have, in conclusion, to say, that as yet we have not carried away a gun breeching, nor hurt so much as a man's finger nail in the working of our guns and turrets; and the only damage done has been, in my opinion, from the defective fittings on deck, such as weak cap scuttles, &c., and the injury to the hawse pipe, for which I am alone to blame; though that would not have occurred if there was less wood and more iron used in the construction of our iron-clad ships.

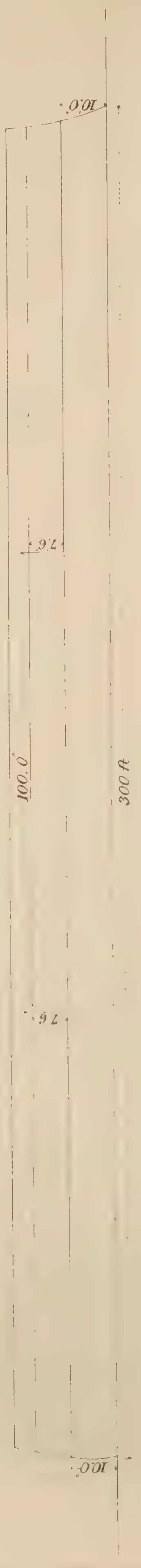
14. I beg to enclose an abstract, showing the total number of rounds fired from each turret,

And have, &c.
(signed) *Sherard Osborne*, Captain.

To Admiral Sir M. Seymour, G.C.B.,
&c. &c. &c.
Commander in Chief.

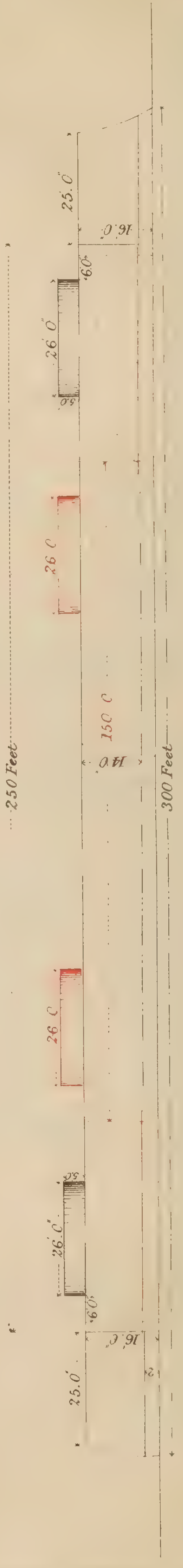
A

Broadside ship of 10 Guns, 5 each side.


10.0"
7.6
100.0"
300 ft
7.6
10.0"

B

Two Turret Ship of 4 Guns.


25.0"
16.0"
6.0
26.0"
5.0
26.0
150.0
14.0
250 Feet
300 Feet
26.0
5.0
26.0"
6.0
16.0"
25.0
2

Turrets as in Black for fire all round
Red with all round fire sacrificed

Table showing the Number of Rounds fired from the Turrets of Her Majesty's Ship, "Royal Sovereign."

DATES.	No. 1 Turret.										No. 2 Turret.					No. 3 Turret.					No. 4 Turret.				
	Right Gun.					Left Gun.																			
	Distant.	Full.	Reduced.	Double Shot.	Blank.	Distant.	Full.	Reduced.	Double Shot.	Blank.	Distant.	Full.	Reduced.	Double Shot.	Blank.	Distant.	Full.	Reduced.	Double Shot.	Blank.	Distant.	Full.	Reduced.	Double Shot.	Blank.
26 July - 1864 -	–	1	1	–	3	–	3	–	–	1	–	6	1	–	7	–	–	–	–	–	–	–	–	–	–
27 July - ,, -		6	–	–	3	2	6	–	–	3	4	6	–	–	3	2	6	–	–	3	2	6	–	–	3
29 July - ,, -	1	6	–	–	–	1	1	–	–	–	1	4	–	–	–	1	4	–	–	–	2	2	–	–	–
5 September ,, -	–	–	–	–	–	–	–	–	–	–	7	–	–	–	1	–	–	–	–	–	–	–	–	–	–
7 September ,, -	–	–	–	–	2	–	–	–	–	4	–	–	–	–	4	–	–	–	–	4	–	–	–	–	4
12 September ,, -	–	2	–	–	4	–	2	–	–	5	–	–	–	–	10	–	–	–	–	7	–	13	–	–	–
14 September ,, -	1	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–
Total - - -	4	15	1	–	12	5	12	–	–	13	12	16	1	–	25	3	10	–	–	14	6	21	–	–	7
Of all kinds - - -			32					30					54					27					34		

Total Number of Rounds - - - - - - - - - 177

(signed) *Sherard Osborne*, Captain.

(No. 1511—One Enclosure.)

"Victory," at Portsmouth, 19 October 1864.

Submitted for their Lordships' information.

(signed) *M. Seymour*,
Admiral.

The Secretary to the Admiralty,
London.

— III. —

The two **Sketches**, A and B, referred to by Admiral *Robert Spencer Robinson*, in the last paragraph of his letter, dated the 13th day of July 1865.

(*See* opposite.)

— IV. —

Copies of the **Letters** referred to in the marginal note, page 158, of the Return, No. 87.

List of Documents.

Date.	SUBJECT.	Page.
20 Mar. 1863 -	Controller of the Navy to Captain Coles - - - - - - -	
21 May ,, -	Controller of the Navy to Captain Coles - - - - - - -	
27 ,, ,, -	Controller of the Navy to Captain Coles - - - - - - -	
1 June ,, -	Controller of the Navy to Captain Coles - - - - - - -	
9 ,, ,, -	Report of the Controller of the Navy - - - - - - - -	
17 ,, ,, -	The Secretary of the Admiralty to Captain Coles - - - - - -	
30 ,, ,, -	The Secretary of the Admiralty to Captain Coles - - - - - -	
24 July ,, -	The Secretary of the Admiralty to Captain Coles - - - - - -	

The

The Controller of the Navy to Captain *Coles.*

Sir, Admiralty, 20 March 1863.

I BEG leave to inform you that the accompanying sketch of a design for a sea-going two-cupola ship has been prepared by the draughtsmen of this department in accordance with your wishes, and it is now forwarded to you for the purpose of your making any remarks upon it, or offering any suggestions.

It is also desirable that you should state what guns you contemplate placing in the cupola, and what diameter of hole in the deck will be required.

I am, &c.
(signed) *Robert Spencer Robinson.*

Captain Coles, R.N.
14, Clarence Parade, Southsea.

(Enclosure.)

MEMORANDUM.

From a preliminary examination of the conditions laid down by their Lordships for the design of a ship to carry two of Captain Coles' shields, it appears to be impossible to fulfil all the conditions. The accompanying tracing shows the nearest approximation to them. If no insuperable practical difficulties should occur in working out the design, such a vessel might be built with the following principal dimensions, &c.:—

	Ft.	*in.*
Length between the perpendiculars	280	0
Breadth, extreme	54	0
Draught of water—Forward	21	6
Ditto - - Aft	24	6
Displacement	6,000 tons.	
Tonnage (Builders')	3,700 ,,	
Engines	800 horse-power.	
Coals	7 days.	
Speed, not more than	12½ knots.	
Height of side above water (amidships)	10 feet.	
Ditto centre of metal of guns, about	13 ft. 6 in.	

As this ship would have one deck less than the "Defence," would be lighter in construction, and would have about the same amount of armour, she ought not to cost more than 45 *l.* per ton, exclusive of shields, and supposing these to cost 50 *l.* per ton weight, the amount would stand thus—

	£.
Hull	166,500
Shields	12,000
	178,500

The speed of 13 knots could only be obtained by increasing the power of the engines and the size of the ship.

Any increase in the thickness of the armour would also require a larger ship.

On the other hand, a smaller ship than that described here might be made to carry the two shields by a further sacrifice of speed.

Controller of the Navy to Captain *Coles.*

(Private.)

Sir, Admiralty, 21 May 1863.

WITH reference to your letter of the 20th instant, I beg leave to inform you that the drawings and plan sent with your letter of the 14th April, together with a report from the Constructors of the Navy on the plan to place two shields in a vessel similar to the "Favourite," were submitted to the Board of Admiralty with the following remark:—

"I should have no hesitation in recommending their Lordships to adopt the plan if the shields had been more fully tried. Until, therefore, some more decisive experiments have been made in the 'Prince Albert' and 'Royal Sovereign,' I should advise the postponement of this plan."

To this submission no answer has yet been received.

I am, &c.
(signed) *Robert Spencer Robinson.*

Controller of the Navy to Captain *Coles.*

Sir, Admiralty, 27 May 1863.

In reply to your letters of the 20th and 22d instant, requesting information respecting a sea-going shield-ship, ordered by their Lordships on the 6th March, to be designed in accordance with certain conditions therein quoted, I beg leave to state that on the 20th March I wrote a letter to you (a copy of which is annexed), inclosing a tracing of a ship designed in accordance with their Lordships' order, to enable you to make any suggestions which you might have to offer, and that to that letter I have as yet received no reply.

I am, &c.

(signed) *Robert Spencer Robinson.*

Captain Coles, R.N.,
13, Eastern Parade, Southsea.

Controller of the Navy to Captain *Coles.*

Sir, Admiralty, 1 June 1863.

In reply to your letter of the 29th May, I beg leave to explain the position in which your design or proposal of the 18th February last now stands.

On the 6th of March the Admiralty acquainted me that they had laid down the conditions which they expected to be fulfilled by the new design.

On the 20th of March, after communicating with Mr. Barnaby, the draughtsman of this department, a sketch of a design which had been agreed upon between yourself and him as the nearest approximation to the required conditions of the Admiralty was sent to you, together with the draughtsman's observations, requesting you to make your remarks and suggestions, and asking for certain information. It was pointed out to you verbally, on the 23d March, that the conditions required by the Admiralty had not been complied with, and it was understood that either you would modify your design, or at least reply to my letter, if you considered the design sufficiently near to the Admiralty requirements to be further proceeded with.

On the 16th of April I received a minute from the Board of Admiralty on a letter of yours, dated the 14th April, addressed to the Duke of Somerset, desiring me to report on a proposal of yours to put two shields into a ship in all other respects similar to the "Favourite."

To that minute I replied, on the 16th of April. I informed the Board how far your design of the 18th February had proceeded, and that a sketch as agreed upon, but not fulfilling the Admiralty requirements, together with my letter, had been sent to you on the 20th of March, to which I had had no reply.

I considered, and I think that the Board also considered, that your letter to the Duke of Somerset, dated the 14th of April, was a relinquishment of your design of the 18th of February, and was, in your opinion, in all respects a preferable proposal; I certainly concurred in that view, and, after taking time to verify your calculations and to consider the matter in all its bearings, I made a further report to the Board on the 7th of May, extracts from which I sent to you on the 21st of May, in answer to your letter of the 20th.

I now understand from your letter of the 22d and of the 29th ultimo, that you did not propose your design of the 14th of April as a substitute for the design proposed originally in your letter of the 18th February. If I am right in so understanding you, and that you still wish to proceed with the sketch sent to you on the 20th March last, I will, on your writing to me and giving an answer to my letter of that date, take the pleasure of the Board of Admiralty on the subject of further proceeding with it. I regret to say that the draughtsman placed at your disposal, Mr. Barnaby, is exceedingly unwell, and that the pressure of work now put on the department does not enable me to spare another at present.

I am, &c.

(signed) *Robert Spencer Robinson.*

Captain Coles, R. N.
13, Eastern Parade, Southsea.

Report of the Controller of the Navy.

Admiralty, 9 June 1863.

On the 16th of April I made a report to their Lordships on Captain Coles' plan to place two shields in a ship of the "Favourite's" class, and, at the same time, on the sketch of a design of his, to construct a sea-going ship with four or two cupolas in accordance with certain conditions laid down by their Lordships on the 6th of March.

I considered that he had given up that design, and wished to be allowed to fit a vessel of the "Favourite's" class instead, as I had not received any answer to my letter and observations of the 20th March.

But it now appears, from a letter that I have received from Captain Coles, that I was quite mistaken, and that he wishes to proceed with that design, and is confident of succeeding in it.

I submitted further, on the 7th of May, that his plan for fitting a ship like the "Favourite" should be postponed until further trial had been made of his shields in the "Royal Sovereign."

I did not receive any answer to that submission; but for the reasons I then gave,

I recommend that Captain Coles should be informed that until the shields have been more fully tried, both as to the facility they afford of working and fighting the heavy guns for which they are intended, and until some further searching trials have been made of their resisting powers, either in the "Royal Sovereign" or the "Prince Albert," their Lordships cannot give him any assistance towards completing his designs.

At the same time, if Captain Coles thinks proper to endeavour to perfect a design complying with their Lordships' conditions of 6th March, he is at liberty to do so, and that such design will be carefully considered when submitted to them.

(signed) *Robert Spencer Robinson.*

The Secretary of the Admiralty to Captain *Coles*.

Sir, Admiralty, 17 June 1863.

With reference to your proposition to prepare a design for a sea-going cupola ship, I am commanded by my Lords Commissioners of the Admiralty to acquaint you that until the shields have been more fully tried, both as to the facility they afford of working and fighting the heavy guns for which they are intended, and until some further searching trials have been made of their resisting powers, either in the "Royal Sovereign" or the "Prince Albert," their Lordships cannot afford you any assistance towards completing your designs; at the same time, if you think proper to endeavour to perfect a design complying with the conditions as prescribed on the 6th March, you are at liberty to do so, and the design will be carefully considered when submitted to their Lordships.

I am, &c.

Captain Coles, R. N. (signed) *C. Paget.*

The Secretary of the Admiralty to Captain *Coles*.

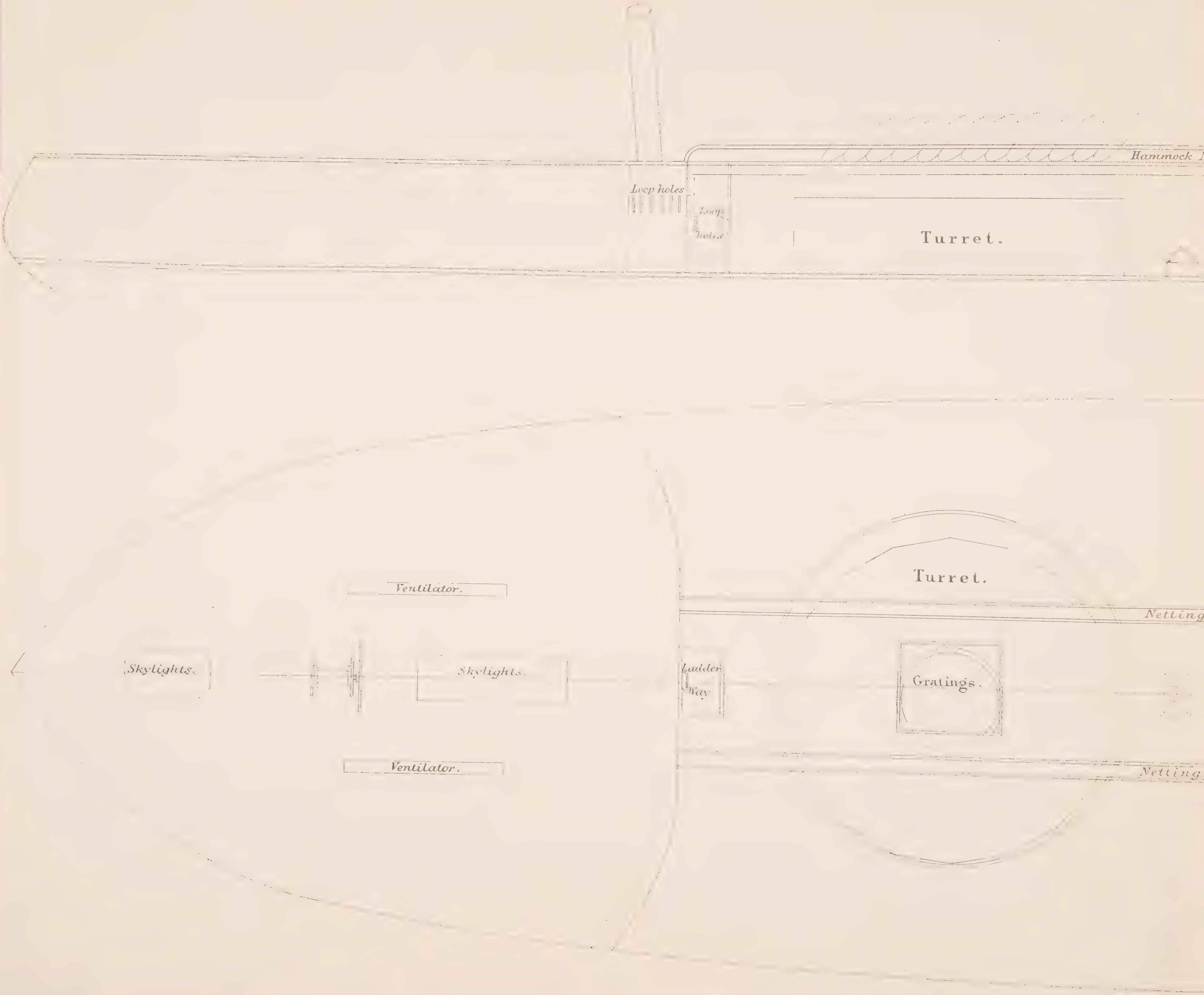
Sir, Admiralty, 30 June 1863.

In reply to your letter of the 25th instant, I am commanded by my Lords Commissioners of the Admiralty to acquaint you that they have not expressed any intention of "abandoning the plans for a sea-going turreted ship," and they will be ready to consider them whenever you may submit them in a sufficiently matured form, to enable their Lordships to form a judgment upon them.

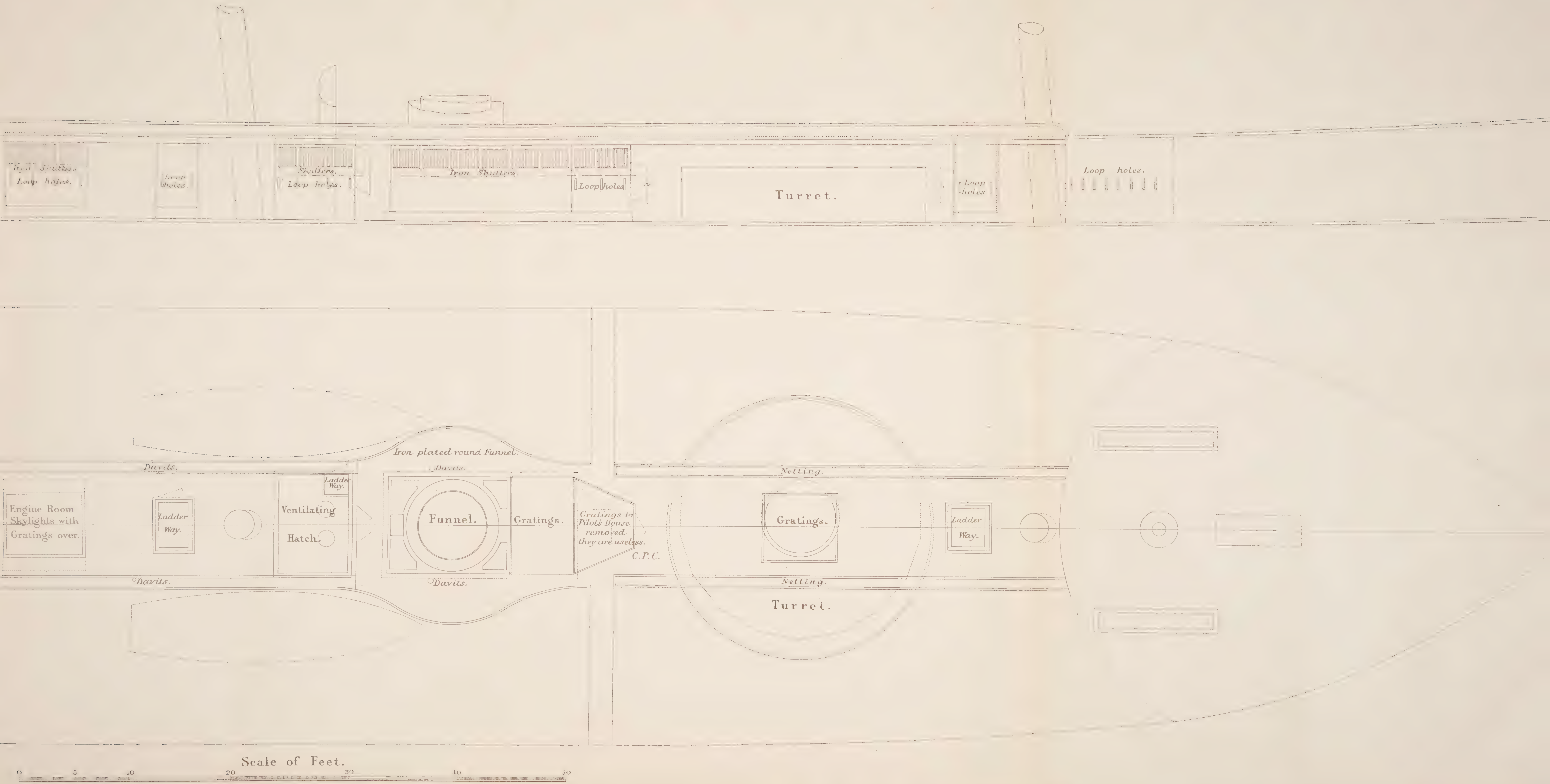
My Lords would have no objection to furnish you with the substance of any observations made by the Constructors of the Navy upon the drawings and statement submitted by you on the 14th April, if those observations were calculated

To face page 23.

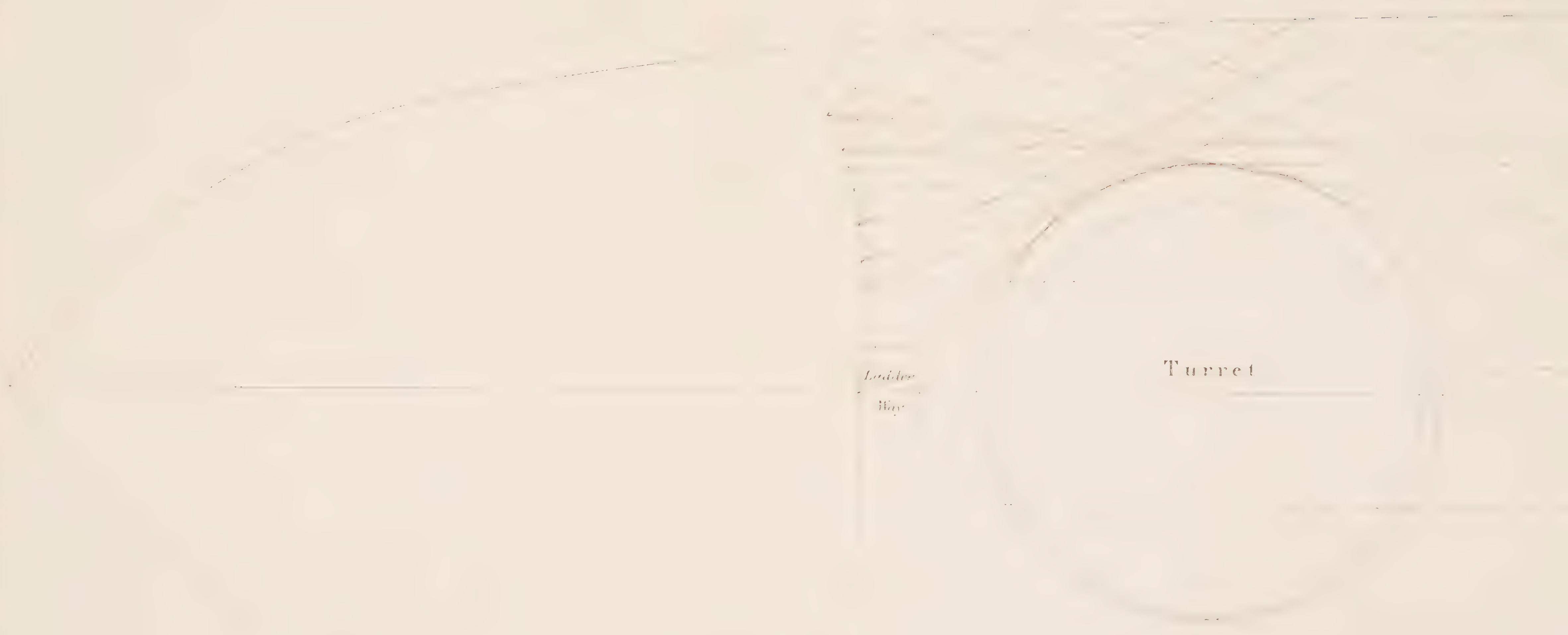
H.M.S. "WIVERN." PROPOSED ARRA


Hammock
Loop holes
Loop holes
Turret.
Turret.
Netting
Ventilator.
Skylights.
Skylights.
Ladder Way
Gratings.
Ventilator.
Netting

ENT OF BRIDGE FORE & AFT WITH HATCHWAYS CARRIED UP TO FORM RIFLE TOWERS.

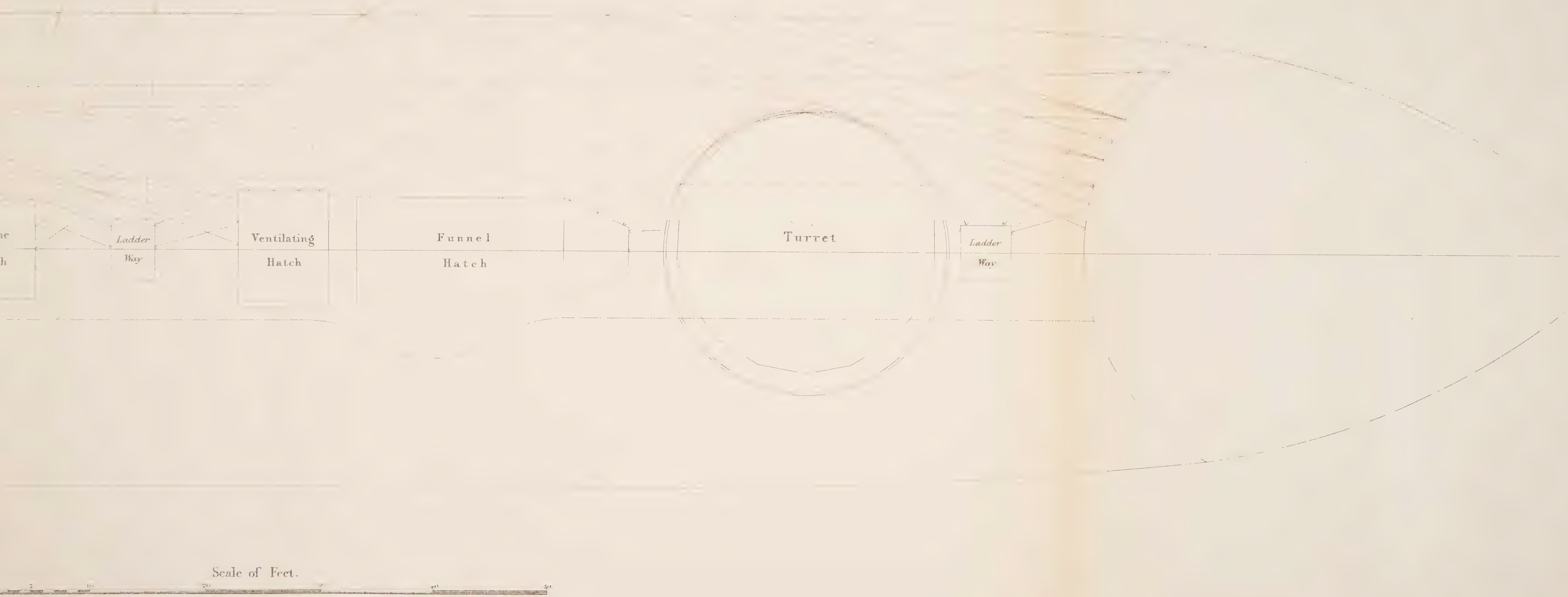

Iron Shutters.
Loop holes.
Loop holes.
Shutters.
Loop holes.
Iron Shutters.
Loop holes
Turret.
Loop holes.
Loop holes.
Iron plated round Funnel.
Davits.
Davits.
Engine Room Skylights with Gratings over.
Ladder Way.
Ladder Way.
Ventilating Hatch.
Funnel.
Gratings.
Gratings to Pilots House removed they are useless.
C.P.C.
Davits.
Davits.
Netting.
Gratings.
Ladder Way.
Netting.
Turret.
Scale of Feet.
0
5
10
20
30
40
50

PLAN SHEWING LINES OF CROSS FIRE


Ladder Way
Turret

H.M.S. "WIVERN"

ABLE FROM HATCHWAYS &c. AS PROPOSED TO BE CARRIED UP TO FORE AND AFT BRIDGE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Turret
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Way
Scale of Feet.
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lated to afford you any assistance in preparing your drawings; but as their report is confined to the general question of the comparative advantages and disadvantages of turret and broadside armaments, my Lords see no reason for departing from their general rule of refusing to give any inventor a copy of a report, made solely for their Lordships' information.

After much consideration, my Lords have come to the conclusion that it would not be prudent to commence the building of a sea-going turret-ship, until, by the completion of the "Royal Sovereign," "Prince Albert," or some of the vessels building in private yards, further experience has been gained of the practical working of your plan; and they are confirmed in this opinion by the unfavourable reports they have received of the American turreted vessels, with regard to which a copy of a Despatch from Vice-Admiral Sir A. Milne is transmitted for your information. 22 May. No. 355.

Although, therefore, my Lords are not prepared at once to decide upon applying your plan to a sea-going ship, or to employ in the preparation of drawings for one the draughtsmen of the Controller's Department, who are already fully occupied, their Lordships will give their best attention to any matured plan that may be submitted by you.

I am, &c.
(signed) *C. Paget.*

Captain C. Coles, Eastern Parade,
Southsea.

The Secretary of the Admiralty to Captain *Coles*.

Sir,
Admiralty, 24 July 1863.

I HAVE received and laid before my Lords Commissioners of the Admiralty your letter of the 15th instant, on the subject of the expediency of constructing a sea-going turret-ship; and with reference to your remark that your invention will be tried under the greatest disadvantages, as the "Royal Sovereign" and "Prince Albert" can only be considered as floating batteries for smooth water, not being provided with masts, I am commanded by their Lordships to acquaint you that they have never proposed to themselves that those ships should be fitted as cruizing ships; but they desire me to refer you to their letter of the 30th June, and to repeat, that whenever a matured plan for a sea-going turret-ship may be submitted to them by you, it shall be carefully considered.

I am, &c.
(signed) *C. Paget.*

Captain C. Coles, R.N.,
13, Eastern Parade, Southsea.

— V. —

COPIES of the TWO DRAWINGS enclosed in Captain *Coles'* Letter of the 29th day of November 1865.

(*See* opposite.)

NAVY (TURRET SHIPS).

CORRESPONDENCE between the Admiralty and Captain *Cowper Coles*, relative to TURRET SHIPS, and PAPERS relating thereto (in continuation of Parliamentary Paper, No. 87, of Session 1866).

(*Mr. Corry.*)

Ordered, by The House of Commons, *to be Printed,*
6 *July* 1866.

[*Price* 4*s.*]

395.

Under 8 *oz.*

NAVY (TURRET SHIPS).

RETURN to Two Orders of the Honourable The House of Commons,
dated 1 and 8 March 1866;—*for*,

(Order, 1 March 1866.)

COPY "of the Report of the Admiralty Committee on Turret Ships."

(Order, 8 March 1866.)

"That there be added to the Return relative to Navy (Turret Ships), ordered upon the 1st day of this instant March, a Copy of the Correspondence between the Admiralty and Captain *Cowper Coles,* and of the Papers relating thereto."

Admiralty,
13 April 1866.

JOHN HENRY BRIGGS,
Chief Clerk.

(*Mr. Corry.*)

Ordered, by The House of Commons, *to be Printed,*
5 *March and* 16 *April* 1866.

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— I. —

COPY of the REPORT of the ADMIRALTY COMMITTEE on TURRET SHIPS.

ADMIRALTY ORDER for Assembling the COMMITTEE.

My Lord, Admiralty, 27 April 1865.

THE Lords Commissioners of the Admiralty having appointed you Chairman of a Committee of naval officers selected to examine the design of a sea-going turret-ship submitted to their Lordships by Captain Coles, I am to signify their direction to you to assemble, as soon as convenient, at the Admiralty, the members of the committee named in the margin.

The drawings of the proposed ship, with Captain Coles' explanations, and a paper from the office of the Controller of the Navy, calling attention to the various features of the design that appear to demand consideration, will be laid before you, and you will be furnished by the Controller with any other drawings that you may require.

Rear-Admiral Yelverton.
Captain Caldwell.
Captain J. J. Kennedy.
Captain H. B. Phillimore.

Secretary,
Mr. Arthur Price.

You are then to inquire carefully into the following points:—

1. Armament.

Under this head you will first consider the advantages and disadvantages attending the plan of concentrating the offensive powers of the ship in one turret, having especial reference to the different circumstances in which a ship may be placed in action, and the power which the proposed vessel would have of inflicting injury on her adversary, or of protecting herself from attack of one or more vessels.

You will also consider the arrangements for working the guns, the facilities for training them, both on the broadside and in the direction of the keel, and for giving elevation and depression, for supply of ammunition, with any other points essential to the efficiency of the guns.

You will further consider, so far as the very limited experience we possess will enable you to do so, to what extent the turret might be liable to injuries that would impede or prevent the training and working of the guns, and whether the advantages afforded by a revolving turret would compensate for such a risk.

And under this head you will finally consider whether, with the same weight of materials, any other mode of armament would afford equal or greater powers of attack and defence.

2. Protection of the ship by armour plating.

You will carefully consider the distribution of the armour plating, how far it affords protection to the vital parts of the ship and machinery, as well as the dangers that might arise from parts of the hull being left unprotected.

3. You will consider the arrangements of the machinery, boilers, up-take, and funnel with reference to their safety from damage by the shot from an enemy's vessel.

4. You will carefully examine the arrangements for manœuvring and steering the ship in action, and the amount of protection afforded to officers and men engaged on that duty.

5. You will consider what sea-going qualities the vessel may be expected to possess, particularly with reference to the following points:—

Speed.
Steerage, including power of turning quickly.
Easiness in a sea-way.
Dryness.

Power of carrying sail.
Rolling.
Pitching.
Power of fighting her guns in a sea-way.
Stowage of boats, spars, &c.
Stowage of anchors, and facilities for working them and the cables.
Riding at anchor.
Arrangement of masts and amount of sail.
The advantages or disadvantages of the proposed rig in action, and at other times, and the facilities for clearing for action.
The security of the masts under fire.

6. You will consider the arrangement for the accommodation of the officers and men, for their health and comfort, and for their protection from weather and sea both when cleared for action, and, under ordinary circumstances, also for ventilation, and generally any other points affecting the health and comfort of the crew, as well as the stowage of provisions, water, and stores.

To enable you to conduct this inquiry in the most satisfactory manner you are empowered to employ a short-hand writer, and to examine any witnesses you may think necessary. And you will, from time to time, furnish my Lords with the names of the persons you may wish to examine.

An officer from the Controller's Department will be directed to attend, when required by you, to afford any information and make any calculations, you may desire.

Captain Coles will also be directed to attend, or to name some person in his behalf, when required by you, to afford any explanations you may call for, and my Lords consider that he should be allowed full opportunity of considering and answering any objections that may be urged against his plans.

My Lords do not propose that you should inquire into the details of the construction further than may be necessary to elucidate the different points submitted to you, and to enable you to form an opinion upon the general merits of the plan. The object of their Lordships is to obtain the unbiassed opinion of practical naval officers whether a ship, built and armed as proposed, would be equal or superior to any other vessel of equal tonnage and speed that could be designed, and whether she would possess those qualities and those powers of offence and defence which are essential to a good ship of war.

I am, &c.
(signed) *C. Paget.*

Vice Admiral the Right Hon.
Earl of Lauderdale,
17, Upper Hyde Park Gardens.

REPORT of a COMMITTEE of NAVAL OFFICERS, appointed to examine the DESIGN of a SEA-GOING TURRET-SHIP, submitted to the ADMIRALTY, by Captain *C. P. Coles*, R.N., together with the MINUTES of EVIDENCE and APPENDIX.

REPORT.

TO THE RIGHT HONOURABLE LORD C. E. PAGET, SECRETARY OF THE ADMIRALTY.

My Lord,

IN pursuance of the directions of the Lords Commissioners of the Admiralty, signified to Vice-Admiral the Earl of Lauderdale, by your letter of the 27th of April 1865, appointing us a committee to examine the design of a sea-going turret-ship submitted to their Lordships by Captain Coles, we have the honour to report that we assembled at the Admiralty on the 2d of May, since which time we have been continuously engaged in the consideration of the various points of inquiry to which our attention was directed by their Lordships.

Appendix, No. 1.

Appendix, No. 2.

1. We have carefully examined and considered the plans and drawings of the proposed sea-going turret-ship, and the letter dated the 3d April 1865, of Captain Coles, giving an explanatory description of the proposed ship, as well as the letter dated the 26th April from the Controller of the Navy, calling attention to several features of the design that appeared to demand consideration.

We have also had the advantage afforded to us by their Lordships of the perusal of various papers in the records of the Admiralty relative to the sea-going and other qualities of armour-clad ships of war.

We have examined witnesses whom we considered best qualified to afford valuable information on the subjects referred for our consideration. The Minutes of the evidence given by the several witnesses are annexed hereto.

Inability of Captain Coles to attend the Committee, or name a representative.

Appendix, Nos. 4, 5, 6, 7, and 8.

Appendix, No. 4, Enclosures 1 and 8.

2. The severe illness of Captain Coles rendered him incapable of attending before us, and we were therefore unfortunately deprived of the benefit of his personal explanation of the various features of his designs, which was the more to be regretted, as we were informed, by your letter of the 10th of May, of the "inability" of Captain Coles "to name any person to represent him before the committee." Under these circumstances, having regard to that part of their Lordships' instructions to us, that Captain Coles should be allowed full opportunity of considering and answering any objections that might be urged against his plans, we adopted what appeared the most expedient course; and, after hearing such evidence as we considered necessary, forwarded to Captain Coles, on the 5th of June, for his explanations and remarks, a summary of the objections to his designs which had occurred to us and been alluded to in evidence, without expressing any opinion as to the greater or less importance that we attached to them. His communication in reply to that paper, and the correspondence connected therewith, will be found in the Appendix. We much regret the course taken by Captain Coles, in "declining to interfere further in the matter," either by answering the objections indicated to him, or furnishing the information previously requested of him. It will be observed that, in this Report, we speak with hesitation on certain points, because Captain Coles does

not appear to have furnished to the Admiralty, and has not given to us, any detailed particulars respecting the dimensions and construction of the turret, nor description of the tripod masts, and lead of ropes, intended for the proposed sea-going ship.

Two principal questions for consideration.

3. The question referred to us involves two principal subjects of consideration, to which we have given careful attention:—

The turret system of armament.

First. The advantages and disadvantages of arming a sea-going ship of war on the system of a central armament placed within a revolving turret or turrets.

The proposed one-turreted ship.

Secondly. Whether the ship proposed in the design submitted by Captain Coles, to be armed with two 600-pounder guns contained in *one* turret, would be the most suitable vessel for the application of the turret system of armament to a sea-going ship.

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4. We now proceed to give the result of our deliberations.

I. THE REVOLVING TURRET SYSTEM OF ARMAMENT AS APPLIED TO A SEA-GOING SHIP.

Advantages.

Advantages of turret system.

5. The distinctive advantages of this mode of armament appear to us to be:—

(*a.*) That it is the most efficient mode of carrying and working very heavy guns in a sea-way.

A steadier platform is obtained from which to fire.

A gun mounted in a turret is higher out of the water, and being also in the centre of the ship, can therefore be fought longer and more efficiently in a sea-way than when mounted on the broadside.

The extent to which the gun can be trained in a turret is only limited by the obstructions on the deck. There is also greater facility of training than with broadside guns as at present fitted.

When under the fire of musketry, the port in the turret can be turned away from the enemy while the gun is being loaded.

More elevation can be given to the guns on the turret system, than on the broadside, as ports are now fitted.

So far as being able to keep the gun when loaded always pointed towards the object, a greater rapidity of fire is obtained by the turret system, the captain of the turret having at all times a distinct view of his object, which, in a sea-way, would be frequently lost sight of by the captain of a broadside gun; and further, the object is less liable to be intercepted by smoke.

(*b.*) There is better protection for the men fighting the gun who are actually inside the armour-plated part of the turret, and also for the gun and carriage, in the turret system than in the broadside.

(*c.*) We believe that a turret with 6-inch armour plating would be almost invulnerable as regards penetration against any guns of less weight than 12 tons.

(*d.*) A ship armed with two turrets has the advantage of being able to direct all her guns on the same object on more bearings than by any other known plan; and of throwing a heavier weight of metal on either broadside than can be done by any armour-plated vessel of equal size and tonnage armed in any other mode now afloat, or that has yet been designed, so far as we are aware of.

(*e.*) Of two vessels of the same speed, one armed on the broadside, and the other armed with two turrets, the latter has a greater facility of placing herself to an advantage in action, by keeping head to sea in a sea-way than the broadside ship.

(*f.*) If the ship were totally dismasted and the screw disabled, a one-turret-ship would probably, and a two-turret ship certainly, be able to continue the action to greater advantage than a ship armed on any other plan under the like circumstances.

(*g.*) When a ship has to go through an intricate channel, or up a winding river, where the enemy is always in range, the turret system would give a greater facility to a one-turret ship probably, and a two-turret ship certainly, of keeping her guns bearing on the enemy, while the ship would be following the course of the channel or stream.

DISADVANTAGES.

6. Against these advantages must be set the disadvantages that such a system of armament would entail upon a sea-going ship, and which appear to be as follows:— **Disadvantages of turret system.**

(*a*) The liability of the turret to be disabled or temporarily impeded in its working, under any of the following circumstances:—

The possibility of a steel shot or shell entering the top of the turret when the vessel might be rolling towards her enemy, or exposed to plunging fire from a battery.

The probability of a shot or shell from a 12-ton gun penetrating the turret, or entering through the armour plating of the ship's side, disabling the guns, or damaging the turning machinery of the turret.

A heavy shot striking the ship's side abreast of the turret, even without penetrating, would be liable by the great concussion to send fragments of wood or iron into the lower part of the turret or its machinery, and temporarily prevent its working.

If a turret-ship were heeling towards the enemy, a shot passing through the upper deck, between the glacis plate of the turret and the ship's side, would damage or disable the turning machinery.

The probability of the men stationed within the turret, who might be leaning against its side, being seriously injured by the concussion in such a confined space, if the turret were struck by a heavy shot without penetrating. **Evidence, 906.**

(*b.*) The possibility of the ship being boarded and the turret jammed by wedges.

(*c.*) The great length of deck fired over when firing forward or aft with any depression, especially when using very heavy rifled shot with the largest charges, which it is supposed might injure the deck or fittings. **Evidence, 895.**

(*d.*) The difficulty of securing hatches or openings in the deck which would be in the way of the line of fire of very heavy guns.

(*e.*) If, from any circumstances, it should be necessary to manœuvre the ship under sail, in action, or to employ men on deck for any work or duty, the total want of protection for the men employed on deck, and the impossibility of their remaining on that part of the deck near which the guns are being fired; as also the risk of their being washed overboard, if the ship should be driven against a head sea when cleared for action.

(*f.*) The difficulty (without sacrificing the advantage in the turret system obtained by extreme lowness of the ship in the water) of constructing a sea-going ship armed on the turret system, so as to have her upper deck of sufficient height above the water to render the ship a good sea boat, and afford adequate protection for the health and comfort of the crew under all circumstances, but more especially when forcing the ship against a head sea, trade wind, monsoon, or strong periodical winds met with in all parts of the world, and which ships are liable to encounter when making a passage.

(*g.*) The necessity for having so many fittings on deck, as well as the bulwarks, moveable; and it being questionable whether the bulwarks can be made sufficiently strong to resist the sea; and the liability of moveable bulwarks to be washed away, or get out of order from constant wear.

(*h.*) The being obliged to unstow and ease down the anchors, to unship and let down bulwarks, besides removing everything moveable from the line of fire, and seeing the deck clear of men, and the hatches secured, before going into action, would cause considerable delay.

(*i.*) If the captain of the turret has not better protection from rifle fire than is at present afforded him in the "Royal Sovereign," he would be the most exposed person in the ship, which might render him unsteady in action.

OPINION ON TURRET SYSTEM.

Advantages of turret system for coast defence vessels fully admitted.

7. We fully recognise the great advantages of the revolving turret system of armament as applied to floating batteries, and harbour and coast defence ships, to which they are in a great measure confined; as vessels on the "Monitor" plan can be built so low as to render it most difficult to hit them, and in which the unlimited training of the turrets would not be interfered with by masts or other obstructions. A floating battery of this description, even with one turret only, would be most formidable, for, if the turret were disabled, she could haul out of action under protection of her consorts.

Advantages of system materially curtailed in a sea-going ship.

8. But in a sea-going cruising ship these great advantages would be materially curtailed, because all sea-going ships of equal speed and tonnage and carrying the same weights must be of the same height out of the water to enable them to possess the same good sea-going qualities, and to be equally dry; and must necessarily have masts and other fittings, which would materially limit the amount of training of the guns.

Consideration given to the system by Foreign Powers. Evidence, 784. 806.

9. We have heard that ships built on the "Monitor" system could cross the Atlantic with comparative safety, but such vessels cannot, in our opinion, be ever looked upon as sea-going cruising ships. It is shown in evidence that the French, who, there is little doubt, have carefully weighed the question of arming ships with revolving turrets, have not adopted the system, nor even thought it desirable to give it a trial, in a sea-going ship. Again, it would appear that the Americans, who have had considerable experience with turret ships of various descriptions, both in and out of action, do not consider them desirable as sea-going ships.

The system should have a trial in a sea-going ship.

Evidence, 1005.

(Report of Special Committee on Iron Plates, 1864, p. 16.)

10. Notwithstanding these statements, weighing the advantages and disadvantages of the turret principle, and the very divided opinions on the subject entertained by naval architects and naval officers who have given careful attention to the question as it regards sea-going ships, we consider it most desirable that a conclusive trial should be given to the system in a sea-going ship to be armed with *two* turrets, capable of carrying two 12-ton guns in each turret, or, if necessary, one 22-ton gun in each; as we think it very possible that such guns as those of 22 tons may be required at sea ere long, and it is not improbable that the French, when considering the subject some time ago, did not contemplate the necessity of carrying such heavy guns.

The system should be limited to two turrets in sea-going ships.

Evidence, 1227.

11. We are inclined to the opinion that, for sea-going ships, the system should be limited to *two* turrets; for there are many disadvantages if more than two are placed in a ship; and one turret only we think most objectionable. If more guns than those in the two turrets be considered desirable, the space between the turrets could be profitably turned to account in a ship of sufficient displacement, by connecting the turrets with a battery of guns worked on the central pivot system.

II. THE DESIGN SUBMITTED BY CAPTAIN COLES FOR A SEA-GOING SHIP WITH ONE TURRET.

ARMAMENT.

Armament of proposed ship.

12. It is proposed to arm the ship with two 600-pounder guns contained in one turret. If such guns can be carried and efficiently fought at sea, the ship would be a more formidable adversary than any existing broadside ship of the same tonnage and speed that we know of, so long as the turning power of the turret remained unobstructed. But, on a full consideration of the advantages and disadvantages attending the plan of concentrating the offensive powers of the ship in one turret, having especial reference to the different circumstances in which a ship may be placed in action, and the power the proposed vessel would have of inflicting injury on her adversary, or of protecting herself from attack of one or more vessels, we are of opinion that it would not be advisable to build a sea-going ship whose entire armament would be contained within one turret.

Objections to an armament contained entirely in one turret.

13. The following objections to such an armament appear to be of serious importance:—

(*a.*) All the armament being in one turret would render the ship liable to be placed *hors de combat* by one shot or shell, or even fragments of a large shell entering the turret, which casualty, we think, in no degree impossible if the ship were rolling towards her adversary, or exposed to plunging fire from a battery on a height.

If turret disabled, the ship would be placed *hors de combat.*

(*b.*) The great disadvantage a ship armed as proposed would lie under, if engaged with an enemy on each side, when the weakest parts of the turret would always be exposed to one or other of her antagonists, which antagonist would at the moment have no gun bearing on her from the turret-ship.

Disadvantage if engaged on both sides.

(*c.*) The liability of the turret becoming instantly fixed by splinters, or any small pieces of wood, iron, or other substance getting under the rollers, or between the cogs of the machinery of the turret. In such a contingency, it might be some time before the cause of the jamming of the turret was discovered, and the obstruction removed.

Liability of turret to be jammed.

(*d.*) The limited amount of defensive powers of the ship when at anchor, against sudden attack from boats, or attempt to carry the ship by boarders.

Limited defence when at anchor against boats or boarders.

(*e.*) The difficulty and length of time required in loading the guns; added to the danger to which the men loading would be exposed if one gun were discharged whilst they were handling the cartridge for the other, and the severity of the concussion upon the men so employed, rendering it indispensable that the guns should be loaded simultaneously.

Difficulty of loading.

Evidence, 9. 169. 276.

(*f.*) The risk of working two such heavy guns, as 600-pounders, in a sea-way, particularly in one turret, must be apparent to all practical men.

Risk of working such heavy guns in a sea-way.

(*g.*) We consider that the interior space in the proposed turret, having only an external diameter of 26 feet 4 inches, with a height of 5 feet 4½ inches above the deck, would not admit of two 600-pounder guns being worked efficiently; but any doubts on this point could be easily set at rest by making rough models, on the full size, of the guns and carriages, and placing them within a wooden skeleton of the exact internal dimensions of the turret.

Limited space for working two 600-pounder guns.

Evidence, 250. 252, 1047.

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14. The arrangements for working the guns, and the facilities for training them, being due to the turret system, are good.

Arrangements for working the guns.

15. It appears by the drawings of the ship, that the greatest power of training the guns aft is limited to an angle of 13 degrees from the fore-and-aft line, and at that angle only one gun can be used. The other gun can only be fired at an angle of about 33 degrees from the fore-and-aft line. In training forward, only one gun can be fired at 2 degrees of the fore-and-aft line; the other gun at an angle of about 13 degrees.

Training.

16. The arrangements for elevation and depression are not shown on the drawings, but we conclude they will be the same as are now usually adopted for heavy guns. The amount of elevation will be greater than with broadside guns; but the amount of depression will be very limited, especially when the guns are trained forward or aft.

Elevation and depression.

17. If the sights are to be fitted as those of the "Royal Sovereign," the plan would be much the same as the system of firing by Moorsom's Director, which is not applicable to all circumstances, and would be likely to cause delay, when the roll of the ship cannot be depended upon to bring the object on.

Sights for directing the guns.

Evidence, 52. 1230, 1231.

18. We see no objections to the arrangements for the supply of ammunition.

Supply of ammunition.

19. If the number of men for working the guns is to be in the same proportion as for those of the "Royal Sovereign," there does not appear to be sufficient space within the box that incloses the base of the turret to hold the guns' crews.

Limited space for guns' crews.

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20. The direction given to us to consider *whether with the same weight of materials any other mode of armament would afford equal or greater powers of attack and defence*, has received our most careful consideration.

If the question is to be taken as meaning the same weight of materials as are comprised in the armour plating and turret only, we are of opinion, from the evidence of the naval architects whom we have examined, that such weights could not be more profitably disposed of, so as to afford equal or greater powers

Whether with same weight of materials any other mode of armament would afford equal or greater powers of attack and defence.

Evidence, 1195.
Evidence, 1169.

of attack and defence. But, if the question may be understood as referring to the whole weight of materials used in the construction of the ship and in the armour plating and turret, then we believe that a vessel could be constructed with greater powers of offence, either to be armed with two turrets, or to be armed on a plan somewhat similar to one suggested by the Controller of the Navy for a vessel of similar displacement to the ship proposed by Captain Coles, and of equal speed; to be plated throughout with 6-inch armour, and carry six 300-pounder guns, four in a battery amidships, one in the bow, and one in the stern. The advantages of the plan suggested by the Controller of the Navy depend upon its being proved to be possible, in a vessel of the required speed, efficiently to carry and fight 12-ton guns, not only on the broadside but at the bow and stern. It is right to add that the Controller of the Navy does not recommend the construction of any sea-going armour-plated ship of so small dimensions as the design he put before us, as a satisfactory iron-plated sea-going fighting and cruizing ship, but being limited to the displacement of the proposed turret-ship, the design was the best fighting and cruizing ship he could furnish on those dimensions.

PROTECTION OF THE SHIP BY ARMOUR PLATING, AND THE MACHINERY, &C., FROM DAMAGE BY SHOT.

Designs of "Pallas" and "Bellerophon" used for design of turret-ship.

Evidence, 947. 963. 1003.

21. It appears in evidence that in forming the design of the sea-going turret-ship, Captain Coles was assisted by the designs of the "Pallas" and the "Bellerophon," and he has adopted the design of the "Pallas" very nearly as regards the proportions, and that of the "Bellerophon" as regards the structure of the ship; although neither the displacement nor the beam of the "Pallas" have been adhered to. It was also stated to us that the "Pallas" was designed and built expressly for particular and not general service, and under circumstances which forbade the resort to the lightened construction which was originated in the "Bellerophon," and has been adopted for the proposed turret-ship.

Distribution of armour.

Appendix, Nos. 1 and 2.

22. The turret-ship is to have an armour belt 2 feet above and 4 feet below the water-line, except at a space which incloses the turret in a box where it is carried up to the upper deck. The armour belt is to be 6 inches in thickness for about 100 feet in midships, and then to taper forward to 4½ inches, and abaft to 3 inches, under the buttock 2 inches. The armour plating above the belt in wake of the turret to be 6 inches thick and about 37 feet long. The armour belt stops 25 feet from the stem, where the plating is run across on a thwartship bulkhead. There are several water-tight bulkheads, and armour-plated thwartship bulkheads, some of which inclose the turret, and others are placed as shields for defensive purposes.

Comparison of weights of armour of "Pallas" and turret-ship.

23. The weight of armour and fastenings on the sides and bulkheads of the turret-ship, is - - - - - -	422 tons.
The weight of wood backing and angle irons - - -	107 „
	529 „
Weight of armour on turret, say - - - - -	50 „
	579 „
The weight of armour and fastenings on the sides and bulkheads of the "Pallas," which ship is built of wood, is - -	560 „

There are, therefore, 138 tons more of armour on the sides and bulkheads of the "Pallas" than on the proposed turret-ship, and allowing so much as 50 tons for the weight of armour on the turret itself, there are still 88 tons more of armour on the "Pallas." But the turret-ship is to have a double iron skin in two thicknesses, each of ¾-inch iron, as will be seen by the description of the ship, making a total thickness of iron for the defence of the ship below the turret of 7½ inches, so far as the armour belt extends in depth, besides the wood backing which is secured with angle iron plates similar to those used in the "Bellerophon."

24. The

Area protected by armour in turret-ship and "Pallas."

24. The area of the armour on the sides of the turret-ship
is, approximately - - - - - - - 3,552 square feet.
And on the bulkheads - - - - - - - 879 ,, ,,

Protected in turret-ship - - - 4,431 ,, ,,

The area of the armour on the sides of the "Pallas," is 6,168 square feet.
And on the bulkheads - - - - - - - 686 ,, ,,

Protected in "Pallas" - - - 6,854 ,, ,,

There are, therefore, 2,423 square feet more of area in the "Pallas" protected by armour than in the turret-ship.

Area unprotected by armour in turret ship and "Pallas."

25. The area of side between decks in the turret-ship,
unprotected, is about - - - - - - 3,126 square feet.
The area of that part of the ship forward, where the
belt is omitted, is about - - - - - - 342 ,, ,,

Unprotected in turret-ship - - 3,468 ,, ,,

In the "Pallas," the area of ship's side between the
main and upper deck not covered with armour, is 2,730 square feet;
unprotected in "Pallas."

Making a difference of 738 square feet of area unprotected in the turret-ship, more than in the "Pallas."

Actual weight of defensive plating in the two ships about the same.

Protection of vital parts of ship.

26. Taking into consideration the extra thickness of the iron deck of the turret-ship, estimated at 150 tons weight of one-inch iron, we assume that the actual weight of defensive plating in the two ships is about the same; and although there is more surface unprotected in the turret-ship, still the vital parts of that ship being protected by 6-inch plating, whilst those of the "Pallas" have only 4½ inches, we think the vital parts of the turret-ship, her magazines, and machinery, are as well protected against shot or shell striking the ship when not rolling heavily, as the "Pallas" or an ordinary armour-clad ship having the same weight of armour, but in 4½-inch plates.

Objection to want of armour plating on the bow.

Sea-going qualities of the ship would be impaired if armour continued round the bows.

Appendix, No. 1.

The want of armour plating on the turret-ship for 25 feet from the stem, is an objection; but with exactly the same weight of iron that is used in the ship, it appears to us, the weight could not be better disposed of than at present; and it is not improbable that, if the foremost armour bulkhead were removed, and the iron, now used therein, applied to continue the armour plating round the bows, even with the small additional quantity that might be necessary, the sea-going qualities of the ship would be injured; and we infer from the third paragraph of Captain Coles' letter, giving a description of the ship, that he is of the same opinion.

Funnel, uptake, and boilers.

27. The funnel, uptake, and boilers are not so well protected as they are in ships that are plated all over.

When rolling, a shot might pass into the boilers or through the ship's bottom.

28. If the ship should be rolling heavily, there is the danger of a shot being able to enter above the armour plating, and penetrating the deck, pass through into the boilers, or possibly through the ship's bottom on the opposite side, the deck being only protected by one inch of iron; but we have no evidence to show what power of resistance this thickness of iron would have for deflecting shot striking it at small angles.

A large proportion of crew must be placed in the holds for shelter during action.

29. We think it objectionable that the officers and ship's company not engaged in working the guns, magazine, and engines, or in steering the ship, and who would be upwards of 100 in number, would have no protection without being placed in the holds for shelter during action.

Not advisable to construct a ship not capable of carrying armour to obviate defects specified.

30. We therefore do not consider it advisable to construct a ship that would not be capable of carrying sufficient weight of armour to obviate the defects we have pointed out.

Arrangements for Manœuvring and Steering the Ship in Action, and the Amount of Protection afforded to Officers and Men engaged on that Duty.

Manœuvring ship in action.
Protection to men so employed.

31. If it should be necessary to manœuvre the ship under sail in action, the men on the upper deck would have no protection against the wash of the sea or fire of the enemy, or from the effect of her own guns; and if the ropes are to be led below, there would be difficulty and risk in working the ship.

Arrangements for steering.

32. The arrangements for steering are very good, inasmuch as the wheel, and the officers and men employed thereat, are completely protected by 6-inch armour plating. The wheel ropes are led from the wheel under the deck plated with inch-iron to the tiller, which is also protected by armour plating of 3 inches and 3½ inches in thickness.

Sea-going Qualities of the Ship.

Speed.
Evidence, 444. 946. 1201.
Appendix, No. 2.

33. The speed estimated by the designer is 13·8 knots; but from the evidence we have taken, it would appear that the speed of the ship will not be so great by from half a knot to a knot and a-half.

Steerage, easiness in a sea-way, stability, rolling, pitching.

34. There is nothing in the construction of the ship to lead us to believe that her steerage, power of turning quickly, easiness in a sea-way, stability, rolling, and pitching, would be different or inferior to any other armour-plated ship of similar dimensions; but on these points, as well as on the question of speed, we have entered with considerable diffidence, as they more particularly come within the province of naval architects, from the evidence of such of whom as we have examined, combined with our own practical experience, we have drawn these conclusions.

Dryness.

35. With regard to her dryness, we think the ship would be more wet, both at sea and when riding at anchor, than is usual with ships of war, from the facts that her upper deck and the bulwarks are lower than is customary in ships of similar dimensions, and that the bulwarks, being moveable, are liable to be washed away.

Power of fighting her guns in a seaway.

36. The ship would have considerable advantage in fighting her guns in a seaway, inasmuch as they are carried in the centre of the vessel, and are considerably higher out of the water than they would be in a broadside ship of similar size, in addition to the advantages of the revolving turret system already stated.

Stowage of boats.
Stowage of spars.

37. As it appears in the plans laid before us that the guns cannot be fired within 13 degrees from the line of keel abaft, she could carry quarter and stern boats, and also a nest of boats between the funnel and mizen mast, so that an adequate supply of boats could be stowed without difficulty. But there would be greater difficulty than in a broadside ship in stowing such spare spars as may be necessary.

Stowage and working of anchors and cables.

38. No description of the arrangements for working the cables, and catting, fishing, and stowing the anchors, has been laid before us; but, judging by the way the anchors and cables are at present fitted and worked in the "Royal Sovereign," we consider the same arrangements to be quite practicable in a sea-going ship, although they will not be so efficient as in ships fitted with standing cat-heads. We think it would be very objectionable to lead the cables on the lower deck, as suggested in a note on one of the drawings of the ship.

Riding at anchor.

39. There is no reason to suppose that the ship will ride uneasily at her anchors, particularly as she is not armour-plated round the bow, and carries no heavy weight forward; but, as we have already remarked, the bulwarks are liable to be washed away or destroyed in a heavy sea.

Arrangement of masts, and amount of sail.

40. We see no objection to the arrangement of masts in regard to their position, or to the amount of sail the ship is to carry, which would be sufficient to enable her to perform the ordinary duties of a cruizing steam-ship, for we consider it undesirable that sea-going steam-ships should be masted in the same proportion as full-rigged sailing ships.

41. The area of sails, as given in the description of the turret ship, is 26,620 square feet, but deducting the sails not usually taken into account when estimating the area of sails in Her Majesty's ships, the area of the working sails of the turret ship is 18,218 square feet.

Area of sails.
Appendix, No. 1.
Evidence, 973.
Appendix, No. 2.

42. We see no disadvantage in the proposed rig in action. It has the advantage of enabling the yards to be braced fore and aft when requisite, giving more range to the training of the guns, and if proper precautions be taken before going into action, the masts would be more secure than those on the ordinary plan. If the legs of the tripod are to be rigidly fixed at both ends, we have doubts whether they will stand the working of the ship in heavy weather without some appliance to meet the effects of expansion and contraction; but this can only be decided by actual trial at sea. Moreover, if one leg of the tripod has the same strength as ordinary rigging on one side would have, the mast would receive double the support on the tripod system, one leg giving support by resistance to compression, and the other holding by tension; and should either leg be shot away in action, the mast would be comparatively safe to what would be the case in a ship with her weather rigging shot away.

Advantages and disadvantages of proposed rig in action, and at other times.

Evidence, 1081.

Security of masts under fire.

FACILITIES FOR CLEARING FOR ACTION.

43. There will be considerable delay in clearing the ship for action, in consequence of the necessity of having to let down the bulwarks, unstow the anchors, and ease them down below the gunwale out of the line of fire, removing other articles off the deck that might be in the way, and properly securing the hatches.

Facilities for clearing for action.

44. It will be absolutely necessary that the bulwarks should be constantly attended to, and kept free from rust, especially the forelocks and hinges, if made of iron.

Bulwarks will require constant attention.

ACCOMMODATION FOR OFFICERS AND MEN, VENTILATION, AND STOWAGE.

45. We consider the arrangements for the accomodation of the officers and men, under all ordinary circumstances, as also the ventilation, and generally other points affecting the health and comfort of the crew, as well as the stowage of provisions, water, and stores, to be as good as is usual in armour-plated ships of war. But in bad weather, and when cleared for action, there is little or no protection for the men on deck.

Arrangements for the accommodation of officers and men, &c.

CONCLUSION.

46. We have stated that we do not recommend a ship should be built upon the design submitted by Captain Coles, although great pains have evidently been bestowed upon the preparation of that design. We have come to this conclusion for the reasons already set forth, more particularly on account of the whole of her armament being comprised within one turret. But the advantages of the turret system of armament appear in many respects to be so great, and the facilities which it affords for carrying the heaviest description of ordnance are so evident, while we believe it to be very questionable whether it will be found possible for guns of the weight of 12 tons and upwards to be as safely and efficiently carried in any other way, that, notwithstanding many attendant disadvantages, we submit that the matter should be no longer left in doubt, and that a trial should be given to the system in a sea-going ship, armed with two turrets, as suggested in paragraph 10 of this Report. The dimensions and plans of the turrets themselves should be prepared and settled before entering on the design of the ship.

Recommend the one-turreted ship proposed by Capt. Coles not to be built.

But submit that the system be tried in a sea-going ship with two turrets.

47. If it should be found, after actual trial at sea, that the disadvantages of the turret system outweigh the advantages in a sea-going ship, we believe that, with comparatively slight alterations, the two-turreted ship would still be a most useful and formidable vessel for coast defence.

If vessel should fail as a sea-going ship, would be useful for coast defence.

48. We wish it to be clearly understood that we do not in any way condemn the one-turret system for floating batteries, or harbour-defence ships, but simply the proposal of depending solely upon one turret for the armament of a sea-going cruizing ship.

Single turret system not condemned for floating batteries, &c.

A turret should be fired at before building a ship.

49. As we cannot find it on record that a turret constructed on Captain Coles' present principle has ever been fired at in this country, we think it very desirable that such an experiment should be made, and the effect of shot and shell from guns of 12 tons or upwards upon the turret and its machinery ascertained, so far as can be done by experiment, before incurring the expense of building or fitting a sea-going ship to be armed on the turret principle.

Lauderdale, Vice Admiral.
H. R. Yelverton, Rear Admiral.
H. Caldwell, Captain,
John J. Kennedy, Captain.
Henry B. Phillimore, Captain.

Arthur Price, Secretary.

Admiralty, 28 June 1865.

MINUTES OF EVIDENCE.

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– 11	Lieutenant Henry K. Leet, H.M.S. "Royal Sovereign." (First examination)	24
– 15	Ditto - - - - ditto - - - - - (Second examination)	31
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MINUTES of EVIDENCE taken before a COMMITTEE appointed to examine the DESIGN of a SEA-GOING TURRET-SHIP, submitted to the ADMIRALTY by Captain *Coles.*

Admiralty, Wednesday, 10 *May* 1865.

PRESENT:

Vice-Admiral the Earl of LAUDERDALE, K.C.B., in the Chair.

Rear Admiral H. R. Yelverton, C.B.
Captain Henry Caldwell, C.B.
Captain J. J. Kennedy, C.B.
Captain H. B. Phillimore.

Captain ASTLEY COOPER KEY, C.B., Her Majesty's Ship "Excellent," Examined.

Captain *A. C. Key,* C.B.

10 May 1865.

1. *Chairman.*] YOU command the "Excellent"?—Yes.

2. And you are Superintendent of the Gunnery Department?—I am.

3. I believe that the "Royal Sovereign" turret-ship is now in your charge?—She is.

4. Have you been present when the turrets were worked in the "Royal Sovereign," and when firing with shot, particularly the large turret with the two guns?—I have been on board at the time when the guns in all the turrets have been working, and firing shot, but working slowly.

5. Have you been inside any of the turrets at the time they were firing shot?—I have, both in the double and single turret.

6. And you have been on the top of them outside?—Yes; I have been both inside and on the top. In standing on the top of the turret I stood there for curiosity—there is no reason why anybody should be standing there—I stood on the turret itself.

7. On the grating?—Yes; it is a sort of quarter-deck, in fact.

8. Right over the gun?—Yes, right over the double and the single turret.

9. When you were inside did you find any serious inconvenience from the concussion caused by

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by firing the guns, such as to prevent men from deliberately working the gun as they would work a broadside gun?—When I was inside I found no inconvenience. On the top of the double turret, when I stood near the ports, I felt very serious concussion. The last time when we were firing the double turret we were anxious to work the guns alternately; marine artillerymen took numbers three or four, and declined to go to their station as loaders while the other gun was being fired, both on account of the concussion and from the danger which they thought they incurred from the fire coming in at the port when they had the cartridge in their hand. I therefore consider it advisable to take steps always to work those two guns together.

10. From what you have now stated, do you think that there is more than ordinary danger in loading one of these heavy guns with a charge, say of between 70lbs. and 90lbs. of powder, whilst the other gun is discharged. I have no doubt that you have observed in night practice at sea an enormous shower of fire which is thrown back into the ship by the wind when firing to windward, and it would be the same with a steamer going ahead. You will take into consideration that the ports are not above six or seven feet from one another?—I do not think that much more danger is incurred by using a large charge, but there is certainly more danger from the fact of the ports being closer together, and the more so as the ports being close to the deck there is a greater chance of the fire being carried back. One way of escape from the fire is cut off in a cupola ship. In a sea-going ship it escapes in all ways, upwards, and sideways, and downwards, but here the deck forms a sort of guide to a certain extent in conducting the fire in; but I think that the serious objection to working the two guns alternately is that the loaders could not stand the concussion, and that objection would dispose of the other.

11. Admiral *Yelverton.*] That is to say, the concussion, and not the fire?—I think that there is danger from the fire, but I think that the other objection is decided. You cannot make the men do it.

12. *Chairman.*] Have you heard the men working the gun allude to the danger, or to the inconvenience, or have you been told so?—I have been told by the officer that two men in the Royal Marine Artillery said, "We are experienced gunners, we have had as much experience as you have, and we do not like to stand in this port with the powder in our hand while this other gun is being fired." I should add, that when we have such heavy guns to fire, of which the fire cannot be very rapid, I do not think that a very serious objection exists to putting two guns in a cupola if you can fire them nearly simultaneously, and take care that you do not fire one while you are loading the other.

13. Admiral *Yelverton.*] In fact, however they fire, they ought to be loaded together?—Yes.

14. *Chairman.*] In short, you are of opinion that the safest and most convenient way of working the two heavy guns is by firing them simultaneously?—I am.

15. Do you think that two such heavy guns, say of 22 tons weight, in one turret, would be likely to be worked nearly so steadily or coolly in action as if they were in separate turrets?—No; I think that the advantage would be in having the guns in separate turrets, because the guns could then work independently of each other; but I should not like that to be considered to be an opinion decidedly against putting two guns in a turret, because by that means the armament of a ship is very much increased at a small addition to the weight.

16. Were you present at any of the practice against the cupola in the "Trusty"?—No.

17. Of course you have read the Report upon it, and the result?—Yes.

18. Are you aware of the dimensions of the turret for the ship proposed by Captain Coles, as contained in the drawing furnished to us?—I am not aware of the dimensions.

19. There is a model of it on the table?—I do not know the dimensions or the sections.

20. You see before you a model of a section of the turret for the ship proposed by Captain Coles; that is furnished to us by the Controller's Department, upon a scale of three-fourths of an inch, as being the size of the proposed turret, for two 600-pounder guns weighing 22 tons. You have stated that you have read the results of 40-pounder breech-loaders and 68-pounders, the latter being cast-iron shot, against the cupola?—Yes.

21. From which I believe it appears that it was most difficult to be hit, and was almost impregnable to those shot?—It was; they did not succeed in seriously damaging the cupola by the fire, or in any way impeding its working.

22. If you will look at that model, it appears that it presents a face which differs materially from the cupola, and from which you will see that there is a face of 12 feet 6 inches, and a perpendicular height of 5 feet 6 inches, and which would always be presented towards you when engaging it; I mean that the two ports and the space between would, under any circumstances, if it was firing at you, always be exposed to a direct shot?—Yes.

23. Bearing in mind that there is only a curve of 20 inches in that space, do you think that there would be any great difficulty in hitting it at, say 500 yards?—I observe, in looking at this model, that there is a difference of form, inasmuch as this has vertical sides, and the cupola which was fired at had sloping sides. As regards the difficulty of hitting one or the other, it depends entirely upon the area of the surface exposed, and therefore, as this is larger, it is just so much more easy to be hit in proportion to the area of the surface exposed. The fact of the curve of the plate does not affect the difficulty of striking the plate, but of course the flatter a curve is, the greater extent of direct surface there will be for the shot to impinge on, without glancing; it is just in proportion to the area of surface that the difficulty would be in hitting it.

24. With properly-trained captains of guns, in smooth water, would you have any difficulty, at the distance taken, in hitting a target presenting the same surface, namely 12 feet 6 inches horizontally, and 5 feet 6 inches perpendicularly?—There is no doubt that an ordinarily-good seaman gunner would strike a target of that size in smooth water at 500 yards, either at every shot or at a very large per-centage of shots. But if it were an enemy's ship, and they fired at him, or if there was any motion in his own ship, the chances would of course be decreased.

25. But

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25. But the chances would not be more than of hitting the same space on a flat-sided ship or a target?—The chances would be no more than of striking a target of the same area.

26. There would be little more difficulty in hitting it than in hitting the same area in a flat-sided ship?—Just so. I would add that that area is very small as compared with the broadside of a whole ship as a point to aim at. If your fire is to be directed against an object of that size, it is no doubt a very small area to fire at when you are speaking of firing at an enemy's ship.

27. I am supposing that you would be firing at that target: you have to consider that as the target at which you are firing?—Yes; in a turret of this description I do not consider that the target is limited to the height of 5 feet 6 inches. It is limited to the height from the top of the turret to the water-line of the ship. The whole height from the top of the turret to the water-line of the ship is vulnerable. I would have that height included in the point to be aimed at.

28. With regard to the supposed invulnerability of the turret, do you think that if struck by shot —say a square-headed shot from a gun of 12 tons weight or upwards, carrying the heaviest charges—there is any great improbability or impossibility of piercing it, or so seriously injuring it as to disable the guns?—I cannot give an answer on that point until I know the thickness of the armour on the turret and on the ship's side, which protects the machinery of the turret.

29. I allude to the turret itself, and not to the plated side. Supposing the turret to be of the same thickness, and of the same strength as the largest turret of the "Royal Sovereign," which you have seen, and which, I believe, is plated with 5½-inch iron all round, and with a backing of 18 inches of teak, and an iron lining of half-inch iron, except between the ports, and 2 feet beyond the ports, making 12 feet in all, where it is protected by 10-inch plates, but with a proportionably thinner backing of wood, do you think that that is invulnerable, say at 500 yards from such guns as I have mentioned with the heaviest charges, and square-headed shot to prevent the glancing off?—I certainly am of opinion that a gun of 12 tons would penetrate the sides or the back of the "Royal Sovereign's" turret, where it was only protected by one armour plate 5½ inches thick; but I do not think it would penetrate the 12 feet having an additional 4½ inches of iron, at 500 yards.

30. Are you of the same opinion if the distance be reduced to 200 yards, taking 300 yards off it? —The velocity of rifle shot is so very little reduced at 500 yards from what it is at 200 yards, that I think that the effect at 200 yards would be very little more than that at 500 yards.

31. What is your opinion if it is fired at from a smooth-bore gun of the same size, namely, with 150 lb. shot, with 50 lbs. of powder, if struck with the best tempered steel shot?—Even so close as 200 yards the difference of effect between a smooth-bore shot and a rifle shot fired with the same charge would be so slight that I could not expect any penetration from one which would not be got from the other; but I have never seen a target of those dimensions fired at, and therefore I am speaking without having data to go upon, excepting by comparing it with other targets which I have seen fired at.

32. You are aware from the turrets of the "Royal Sovereign," that they are open at the top, or merely protected with a grating of iron bars?—Yes.

33. Do you think that when the vessel carrying a turret was rolling towards you, say at from seven to ten degrees, which would be the case in a common sea in the ocean, there would be any great improbability of your being able to hit the opening with a shot or shell, supposing that that was your principal object at the time, and that you were particularly aiming at it, taking it to be a vulnerable point?—There is no doubt that the roof of the turret might be struck when the ship was rolling in the way that you speak of; but either shot or shell, if cast iron, would be broken up by the iron bars, and would do comparatively little damage. I think, however, that steel shell striking would burst with great effect, and would cause considerable damage inside the turret.

34. What would be the effect of liquid iron, supposing that it struck the grating?—Martin's shell filled with liquid iron is so thin that it would scarcely damage the bars at all, a very small amount of thin plating would prevent serious damage.

35. What do you consider the most vulnerable part of the turret, or in what way would you, if engaged against a turret ship, think that you would be most likely to injure the turret, or to render the guns in it *hors de combat*?—I have already said that the sides of the turret, and the back of it are capable of being penetrated by 12-ton guns. Therefore, if any second ship or fort were engaged with her, a single shot from them would probably disable one or both guns; but I consider that by far the most vulnerable part of the turret is the machinery on which it is turned, and therefore the space between the lower part of the turret and the water-line is, I consider, what should be aimed at to disable the turret. A 12-ton gun at any distance under 1,000 yards, would certainly penetrate the ship's side with steel shot, and with sufficient force to break any of the cast-iron work of the machinery if it struck it. If the ship is rolling at all, I consider that the upper deck on each side of the turret is a vulnerable point also. I suppose that it is plated with inch iron, and I should imagine that any shot striking it in the wake of the turret, would bulge in the iron beams and iron plating, so as to prevent the turret from working.

36. You have stated that, when she is rolling, you think that the deck is a vulnerable point?—Yes.

37. Will you look at the drawing, in which a line is drawn, and the ship is supposed to be rolling from 7 to 10 degrees towards you, which we suppose would be a common occurrence in the open sea; do you think that there would be any impossibility or improbability of a flat-headed shot penetrating through into the up-take, or even to the top of the boilers?—There is no doubt that flat-headed steel shot from a very heavy gun, such as you speak of, if it penetrated the side above the iron plating, might pass through the lower deck, and probably pass out through the bottom of the ship; but it would require the heaviest gun and a flat-headed steel shot to do so; and we must bear in mind that the flight of a flat headed

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flat-headed shot is so untrue, that it is not likely that it would be resorted to, excepting in very close action.

38. Then if you think that it would possibly pass out through her bottom, I suppose that there would be still greater chances of its injuring the up-take or the top of the boilers?—Certainly there would be; but I do not consider that nearly so serious as its passing out through the ship's bottom. The injury to the up-take would reduce the draught, and any danger from the flame coming out there might be obviated by opening the fire-doors, and drawing the fires. The injury to the boilers would only be to one boiler, and that would not seriously injure the ship. I should not consider one boiler a vital part of the ship.

39. From what you have seen of the destructive effect of a 12-ton gun, and the resistive power of the armour-plated ships which are at present in existence, would you consider it advisable to construct and arm a sea-going cruising ship with one such turret, as in the plan, with two 22-ton guns similar to that known as "Big Will," bearing in mind the great difference in weight, and the difficulty of working and loading, &c., such being her sole offensive power?—I have no doubt that a 12-ton gun of nine inches calibre, which is to be our service gun of that weight, will penetrate the side of any ship now possessed by any foreign power, at 1,000 yards, with steel shell. That is the gun with which the "Bellerophon" will be armed.

40. Admiral *Yelverton.*] And it will penetrate it with steel shot also?—Of course; that being the case, I consider it to be in every respect an efficient gun to be used against armour-plated ships, and I would wish to see a sea-going armour plated ship of war armed with as many of those guns as she could carry, consistently with her sea-going qualities, and space for working them; I therefore cannot consider it advisable to arm a ship with one turret only, and two 600-pounders, which not only exposes the ship to be entirely disarmed by one shot striking the machinery of the turret, but incapacitates her from defending herself against two antagonists at the same time. I should consider a sea-going ship so armed, to be exceedingly helpless if attacked by boats, or by a squadron of gun-boats. She would have no means of firing at boats approaching under her bow or stern, for the purpose of placing a torpedo under her, which would certainly be used on an enemy's coast. But even putting the question in the abstract, I should consider that four 12-ton guns in two turrets are a more powerful armament than two 22-ton guns in one turret. I say "more powerful" because a vessel so armed not only throws an equally heavy broadside, but the guns can be worked so much more quickly, that in the same space of time they will throw in a considerably heavier weight of metal; besides being more powerful, they would no doubt possess considerable advantage over the one turret, such as being able to fire at two points at once, or to defend the vessel against an attack in an opposite direction, and if one gun or turret is disabled, they have the other to fall back upon.

40A. *Chairman.*] Then we may infer from your answer that you think that there is no question but that a vessel with two turrets, each turret containing two 12-ton guns, would be much more servicable and formidable than the one proposed; namely, with only one turret containing two 22-ton guns?—Certainly.

41. Have you ever heard, or have you seen any documents stating that the Americans have entirely condemned the "Monitor" class of vessels as sea-going ships?—From all the reports which I have read from American naval officers (and I have read a large number), they certainly do not seem to consider the "Monitors" as fit for sea-going ships in any way. But I would add that the "Monitors," as they are constructed by them, never were intended for sea-going ships. I do not think that that fact in itself should decide that a turret could not be fitted to a sea-going ship.

42. Have you heard, or are you aware, that the men serving in these ships have complained that the concussion of the heavy guns within the turrets is so great, that though the firing appears never to have been rapid, and not more than once in 15 or 20 minutes, the men cannot stand inside the turrets, and that the men have also complained that inside, when they lean against the side of the turret, which would frequently be the case, and the turret is struck by shot, the effect is to stun them seriously, and often to wound them?—I have read accounts of complaints being made both by officers and men who have served in the "Monitors," and I certainly believe that the concussion of their turrets, if struck by a shot, would be felt severely inside; but I am quite satisfied that the concussion inside the turrets caused by her own guns, is less than that caused by a broadside gun, from the fact of the area of the port not being so great.

43. As to the effect of a shot striking, do you speak from opinion?—Yes; I think, however, that the turrets of the "Royal Sovereign" are more solid and more substantially built than those which were complained of in the "Monitor;" therefore I do not think that there would be any unpleasant concussion felt inside the "Royal Sovereign," if the shot did not penetrate.

44. As the impenetrability of these turrets in their present shape, as proposed by Captain Coles, is a matter of opinion, they never having been fired at, do you not think that before such a turret was constructed, or a vessel sent to sea armed solely with guns in such a turret, it would be most desirable, and even necessary, that it should be fired at experimentally before proceeding further?—I think that it would be a very interesting experiment to ascertain whether the front of the turrets could be penetrated by our 12-ton guns, and I think that it might very easily be carried out in the "Royal Sovereign" by turning one turret against the other, where there would be no danger of damaging the ship otherwise. The great advantage of the impenetrability of the turret itself is for the protection of the men, which I do not consider a vital point in armour plating a ship.

45. Do you think that two guns in a turret are better protected than two guns on a broadside?—I do not think that they are. The vital point of the guns is the gun carriage and everything connected with it. In a turret vessel, the turret forms the gun-carriage, and all its machinery; that occupies a much larger area, only protected by the ship's side in the same manner, or very little better than a gun carriage is in a broadside ship, and therefore there is more danger of the guns being in that manner disabled in a turret ship than in a broadside, but the guns' crew are certainly better protected in a turret ship.

46. Then, are we to understand that, taking

all circumstances into consideration, the guns in the "Royal Sovereign," which are all in turrets, are not better protected than the same number of guns would be in the broadside of the "Royal Sovereign," supposing that she was iron-plated, and that the guns were in the usual space on the deck?—The "Royal Sovereign's" side is actually thicker, by an increase of wood, than in a similar ship retained as a sea-going ship, and that in itself gives greater protection to the machinery of the carriage than a gun carriage would have in an ordinary sea-going ship.

47. Suppose that she had the same thickness?—As I have already said, that the machinery of the turret occupies a larger area than a gun carriage in a broadside gun-ship, it is more easily hit and disabled, more especially when you consider that a broadside ship, armed with a similar armament, would have a greater number of guns to be disabled before she was entirely disarmed. I am assuming, without knowing what armanent the "Royal Sovereign" could carry in a broadside, that the weights of the turrets are transferred to guns.

48. Do you think that if these turrets were taken away, and the guns were put into the ship's broadside, distributed in a long box, the men would be as well or better protected?—The men not so well; the gun carriages better.

49. Do you think that heavy guns, such as the 22-ton guns, could be as safely carried in a sea-going ship, having regard to the construction of the ship, and as easily fought in any other way as they are in a turret; I am alluding to the 600-pounders?—I have never contemplated the possibility of working a 600-pounder on the broadside of a ship. We, as yet, have had no experience of a 12-ton gun working at sea, and until we have, I think that it would be very doubtful whether we could manage a 600-pounder at sea under any circumstances, excepting in very smooth water. The great difficulty which we have in working heavy guns at sea, is in controlling them when running in or running out, and there is very little advantage gained in that respect in working the guns in a turret over that obtained by working in a broadside. The training of the gun is an operation very easily effected; the difficulty is in preventing a gun moving too easily. There is no difficulty in training a gun on a broadside, and in a turret certainly none. But if it were considered necessary for some certain operation, to use a 600-pounder gun, I would certainly put it in a turret or on a turntable, as it would give a gun of such power so much greater command.

50. Therefore, we are to infer that you consider that in case of being obliged to put two 22-ton guns in a sea-going ship, the turret amidships would be the safest place to carry them, and the place where they would be most likely to be efficiently worked?—Certainly.

51. What is your opinion with regard to the facility of training and working the guns in the turret ships, as compared to guns mounted on the broadside?—The turret gives an immense command of training to the gun as regards the angle of training, which is, no doubt, its great advantage; but there is no question that winch power might be applied to the end of the slide to enable two men to train a gun on a broadside with greater ease than that with which the turret itself is trained, as you would only have in one case 12 tons to move instead of 120 in the other.

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52. With regard to pointing the gun as to direction and laying the gun for elevation, is the plan as fitted in the "Royal Sovereign," as efficient and practicable as the usual plan of looking along the sights attached to the gun, particularly as regards laying the gun for elevation on objects which may be quickly moving, and especially when you cannot trust to the ship rolling the object on?—As regards the pointing of the gun in the turret in the direction of the object, the captain of the turret has fully as great command over the turret as if he were pointing the gun, but as he has to pass the word to No. 2 inside the turret as to what elevation it will be necessary to give the gun with reference to the heel or roll of the ship, and as No. 2 has then to make a calculation, adding to, or subtracting that elevation from, the elevation due to the distance of the object, there is no doubt that at sea, under the ordinary circumstances of a naval action, this will be very liable to delay and error. I do not, therefore, think that the captain of the turret has the same facility in pointing in all respects as if were simply pointing the gun on a broadside. I would add that I have no doubt that by practice the delay and error would be considerably reduced.

53. But besides the causes of delay which you have mentioned, would not the captain of the turret, or captain of the gun, himself have to take his eye off the object to read off the number of degrees before he could call down to the man below?—He would, and that is one of the operations which causes delay, but that would not impede his taking aim, as he cannot fire or prepare to fire until the proper elevation has been given to the gun.

54. Therefore, in all cases where it was advisable to fire by "Moorsom's Director" the plan adopted in the "Royal Sovereign" would be equally efficient, and on the same principle?—It would be equally efficient, but not more so; a similar method would be adopted in both cases.

55. In firing separate guns at a target or a small object when the ship is moving irregularly, you think that there would be delay in laying the guns?—There would always be delay in laying the guns, but I certainly think that when the men are well trained and the side scales are carefully marked, you might obtain the same accuracy as you can by the ordinary method of pointing. I would add that in a turret ship like the "Royal Sovereign," all the weights and all the men being amidships, she is not liable to that irregular motion which a ship armed on the broadside is, and I can scarcely imagine any circumstances under which she could not fire the guns when the ship is horizontal.

56. With regard to the power of depressing the guns in the turret-ship when they are trained either forward or aft, could they, in your opinion, with safety fire such heavy guns as are proposed with any depression at all?—In the "Royal Sovereign" the foremost turret, when pointed abeam, can depress the gun about four degrees; when pointed right ahead, it cannot depress the gun at all, and therefore it would be about in proportion to the angle of training; but that is a point which depends solely on the slope of the deck.

57. Then supposing that a ship so armed had to fire her guns to windward, when the ship was heeling four or five degrees, being obliged to train

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train them anything before or abaft the beam, the could not fire them even horizontally?—If the gun were trained on the beam, you must give the gun the same amount as if the ship were heeling; but as you train the gun fore and aft, less depression would be required.

58. Admiral *Yelverton.*] You alluded to the 12-ton gun as being about to be adopted; is it proposed to put the 12-ton guns in turrets, or is it proposed to use them as broadside guns?—I alluded to the 12-ton gun as being about to be adopted as a broadside gun.

59. In what way will it be fought as a broadside gun?—On a carriage and slide, with various modifications, which we have proposed to enable us to control a gun at sea, in a somewhat similar manner to the broadside guns or slides on board the "Warrior." I shall probably take out the "Minotaur," during the present month, for the purpose of working 12-ton guns on the broadside in the manner which I have spoken of, and I have no doubt that we shall find that they can be so worked.

60. As easily as in a turret?—More easily; I have no doubt that we shall be able to fire those guns on a broadside more rapidly than in a turret. We fired those guns 25 rounds the other day, at a target, averaging 75 seconds each round.

61. Captain *Kennedy.*] That was in smooth water?—Yes. We have been gradually improving.

62. *Chairman.*] But that was not with mechanical fittings for running out?—No; hitherto the gun has been worked with 24 men on the broadside; but I am in hopes that, with the plan which we have now proposed, we shall be able to work the 12-ton gun with sixteen men.

63. Admiral *Yelverton.*] What would be the difference of men required to work a 12-ton gun as a broadside gun and a turret-gun?—Captain Coles has always wished to have 30 men to the 12-ton gun, but I have always considered that 22 men would be sufficient in a single turret.

64. *Chairman.*] Does it require 22 men for each gun, if there are two guns?—I have not had sufficient experience in working a turret to say the exact number; but Captain Coles has always insisted upon 30 men for each gun—60 men to each double turret. The great difficulty has been hitherto in running in the gun; but when a winch is fitted for running in, I have no doubt that the number of men may be easily reduced.

65. Are you talking now of a 12-ton gun?—Yes.

66. Therefore a proportionably larger number of men would be required for a 22-ton gun?—Certainly; when we get to work at sea we shall introduce simple mechanical appliances which I have no doubt will reduce the number of men.

67. Admiral *Yelverton.*] Are you satisfied in your own mind that the appliances which you propose to adopt for the 12-ton guns are sufficient to secure the guns in bad weather?—I am satisfied that we shall, with careful training, be able to work the 12-ton guns on the broadside in any weather in which guns would ordinarily be cast loose at sea, with the arrangements which we contemplate, although they may perhaps require additions and strengthening.

68. Taking the same gun in a turret, do you think that the appliances available in a turret are better for working the gun in bad weather than in a broadside?—I think that in either case the gun can be worked in a sea-way with safety, but there is no doubt that experience will suggest alterations and improvements both in the mode adopted for the turret and for the broadside.

69. Do you believe that the 22-ton gun could be properly secured at sea in really bad weather in a turret according to the appliances which are in existence on board the "Royal Sovereign"?—The plan now adopted in the "Royal Sovereign" for securing the 12-ton gun when the gun is trained on the beam, I should think quite sufficient. I do not think that it would be sufficient even for a 12-ton gun when the gun is trained fore and aft, when the ship is rolling heavily, and with the 22-ton guns much greater security would be required.

70. Do you consider that the proposed turret would be of sufficient dimensions for working two 22-ton guns?—I should certainly say that the proposed turret would not be high enough for working the 600-pounders; it ought to be at least 18 inches or two feet higher; and looking to the comparative sizes of the 600-pounder and the 12-ton gun, there would not be so much space to work the former as there is now for working the guns in the "Royal Sovereign," and they have no space to spare in the "Royal Sovereign."

71. Will you state to the Committee what is your opinion as to the security at present afforded by the carriage in working guns in a sea-way right ahead?—The 12-ton guns in the "Royal Sovereign," when working in that position, are held by the compressors and two small plates. In addition to that, the fore-transom of the carriage projects below the upper part of the platform, and gives a certain amount of support; but I do not think that it is sufficient for working the guns under the circumstances which you have described.

72. Do you know of any means by which the required security could be obtained?—I have not the slightest doubt that appliances could be adopted.

73. *Chairman.*] Have you taken into consideration the system of arming the turret ship, and the weight and materials, and machinery necessary to work it? Are you aware of any other mode of armament or protection for the gun, which would afford equal or greater powers of attack or defence, or have you seen any plans or drawings for that purpose?—I have not seen any drawings or plans of any ship similar to that now referred to; and of course, without going fully into the question of the weights required in each case, it is impossible to give an opinion on the point worth having: but I would lay down broad principles on the question, which are, that if we are satisfied that a 12-ton gun is sufficient for the penetration of the enemy's ship under the ordinary circumstances of a naval action, I should be inclined to mount as many of those 12-ton guns as a ship could carry, taking care that there is no undefended point in the ship. We certainly should have guns capable of training both ahead and astern in the ports in which they are placed in going into action. The number of guns which a ship could carry under those circumstances cannot be gone into without speaking of the description of armour plating, and upon that point

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point I cannot give an opinion without going into the weights.

74. Do you think it advisable or advantageous to concentrate the powers of a sea-going ship in one turret?—Certainly not in a ship of that size. I can imagine a gunboat or small vessel being made very serviceable for harbour purposes, and for inland waters, carrying one turret only.

75. Captain *Kennedy.*] When you speak of the danger of men loading, would not mantlets do away with that danger?—They would to a certain extent, but they would very much impede the loading.

76. *Chairman.*] With regard to the facilities in the supply of ammunition in a turret-ship, in comparison with those in other ships, do you think that they are as efficient?—Yes; I think that the mode adopted, or which could be adopted in a turret ship, is just as efficient as that in a broadside, and that there is no difficulty on that score; that is, as to the mode of supply: but the actual loading in bringing up a shot in a turret-ship would always be a little longer than in a broadside.

77. Admiral *Yelverton.*] You cannot keep any shot in the turret?—It is not done; it is a very simple mode, but still there is a little delay.

78. *Chairman.*] You are alluding to the 12-ton gun?—Yes.

79. It of course would be affected much more by the ammunition of a 22-ton gun?—Yes; in both cases there would be great difficulty in handling the heavy shot; there would, no doubt, be great difficulty under any circumstances.

80. Captain *Kennedy.*] Have you seen the plan of the proposed tripod masts?—Yes.

81. What would be the effect of a shot fired close to the leg of the tripod, or a shell exploding at the muzzle of the gun, more especially on the rivets?—I do not think that the effect of a shot fired so as to clear the tripod, would be at all perceptible, considering the distance which the tripod is from the muzzle of the gun.

82. I allude to a continuous firing?—It is a question of the concussion of the air. There is no doubt that a shell exploding prematurely at the muzzle, or in the gun, would damage some of the plates of the tripod, but I do not think that the pieces of the shell would be sufficient to carry it away.

83. In your opinion, could a ship carry and fight as large an amount of armament on the broadside principle as on the turret principle?—I consider that a ship similar in size and form to that now proposed, if armed on the broadside, and armour-plated to the same amount, would carry a greater weight of guns than in the turrets; these guns would not have the same amount of training, but they would be on each side. This, however, is a question which cannot be answered without going carefully into the weights of the armour which would be required, as well as the weight of the armament. It is not a question for opinion, but it is a question of fact.

84. How much space do you consider should be clear on each side of a 12-ton gun to fight it on the broadside?—Twenty feet between the centres of ports.

85. *Chairman.*] Will you have the kindness to point out to the Committee what you believe to be the advantages of the turret system over the broadside, or do you believe that there are any advantages?—The turret system gives each gun in the turret a much greater command of training, that is to say, a much greater extent of angle through which the gun can be trained. It affords greater protection to the men working the gun; and in an armour-plated ship it has the advantage of bringing a portion of the weight more in the centre of the ship.

86. Considering these advantages which you have now named, do you think that the disadvantages of the turret system are equal to, or more than, the advantages gained by it?—With regard to applying it to sea-going ships, there are a great many disadvantages connected with it, independent of the mere working and training of the guns. One gun in a turret I consider to be worth more than one gun of equal weight in a broadside. I do not, however, consider it equal to one gun on each broadside. If, therefore, a sea-going ship could carry a gun of equal weight on each broadside to every gun which she can carry in a turret, I should prefer that mode of armament even as regards the guns. But the turret system has the disadvantage in a sea-going ship of requiring the upper deck to be kept perfectly clear, quite putting it out of the power of working the anchors and cables when under fire, making it a matter of great difficulty to carry her boats; and masts of any description must greatly impede the training of the gun, which reduces the principal advantage of the turret. The accommodation below is also greatly reduced. The upper deck being so low, the sea would wash over it even in a moderate gale of wind, which would render it a great difficulty to make a turret-ship sea-worthy. There is also great facility afforded in attacking a turret ship by boats, and boarding her. But she has, on the other hand, an advantage in being able to work her guns in a sea-way, being less impeded by the water coming into the ports, owing to the position of the turrets. If the masts were shot away by the enemy's fire during an action, the crew clearing away the wreck would probably prevent any firing being carried on from the turrets, and I consider that a great objection in a sea-going ship. An important objection also exists in the liability of a turret to be disabled, which nullifies so large a portion of the armament of the ship.

87. Captain *Kennedy.*] Would you consider a single turret-ship safe underneath a fort which could fire down on to her?—Any iron-plated ship armed either on a broadside or a turret, could be easily disabled if the enemy could fire down on her deck; but, of course, a single turret would be more easily disabled than a broadside ship.

88. *Chairman.*] I believe that it is considered by many naval officers that a turret-ship could be easily carried by boarding, and so much so, that I believe that some have proposed at once to run alongside her and fling a boarding party on board with wedges to jam the turret, and by so doing to be able to carry the ship at once, and tow her bodily off. What is your opinion upon that point?—It does not appear that there is more facility for boarding a turret-ship than there is for boarding an ordinary broadside ship, where you can get through the ports and get over her side anywhere; especially if the upper part of the turrets were loop-holed for rifles, it would give you a great command of the upper deck. There is no doubt that when the enemy has once got on the upper deck, it would be a very simple thing to wedge the turret, more especially in a single turret-ship.

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89. It has been supposed that by arming a ship with two guns in one turret, she would be incapable of defending herself if attacked by two ships, one on each side; but owing to the great facilities of training the turret, and the length of time in loading those very heavy guns, supposing that the guns were fired separately, would she not be able to get the turret trained round so as to fire on alternate broadsides at her two opponents?—There is no doubt that that could be done if you could fire the guns alternately; but that, from the experience which we have had, does not seem to be advisable.

90. Do you think that in a heavy sea the moveable top-sides would not be washed away either when up or down?—I think that those fitted in the "Royal Sovereign" would not stand in a sea-way, but I do not think that they are at all required for a harbour ship, and for a sea-going ship they should be fitted much stronger; but as they must be fitted so as to lower with great quickness and ease, no doubt it would be very difficult to get them strong enough to resist a sea. I do not, however, consider this a matter of very great importance, as you could fire through them.

91. You could blow them away?—Yes.

92. Taking into consideration the great facility for pointing the guns by means of the helm in screw ships, more particularly in those fitted with the twin screw, do you not think that the great value of extreme training of broadside guns is in a considerable measure compensated for?—There is no doubt that the use of the screw will facilitate the training of the gun; but we ought not to consider a ship satisfactorily armed, unless she has the power of firing a gun on every point. I do not think that we should have a weak point in a ship. We should pay more attention to our bow and stern armament, in case of a second ship attacking us.

[The Witness withdrew.

Mr. Timothy Donohue, Gunner of Her Majesty's Ship "Royal Sovereign," Examined.

Mr. *T. Donohue.*

93. *Chairman.*] You were Gunner in the "Royal Sovereign" when Captain Osborn commanded her?—Yes.

94. And you have been in her since?—Yes.

95. Were you present when they were firing shot?—Yes; on several occasions, nearly the whole of one day.

96. Were you actually in the turrets?—Yes; on the day when they were firing lately, I was in the turrets superintending the firing the whole of that day.

97. Were you in the turret with the two guns?—Yes; the last time that the ship was out I was there during the whole of that firing in the double turret, to the right of the right gun.

98. Were you much affected by the concussion caused by firing the gun, or did you hear the men complain about it?—I was not affected so much by the concussion in the turret as I was standing beside an Armstrong 40-pounder on a ship's main deck, but the men did complain at the left gun: they objected to loading the left gun while they were firing the right. These men had never fired in a double turret before; they were strangers to the guns.

99. Did they complain of the concussion, or was it the danger to which they were exposed in the fire from the other gun setting fire to the cartridge, or what?—The concussion, I should think. I found fault with them for not being more smart, and they complained to me that the concussion was so great that they could not be quicker with their loading.

100. Were marine artillerymen working the guns at that time?—Yes.

101. Did you hear them make any remarks upon the impropriety of a trained gunner loading one gun close to the muzzle of another?—No; they complained of the concussion, that is all.

102. Captain *Kennedy.*] There was no blame attached to the men?—Not at all; it was merely from the want of practice.

103. We have heard that the men loading the guns made some remarks regarding the danger, and said that they understood their work, and considered it dangerous?—They did complain; and, as I understood, this complaint was brought on by my finding fault with their not being more smart, and that they were not doing so well as the seamen at the right gun; and that remark was answered, I believe, by one man, who said that he was as good a gunner as anyone else; that was the only remark which I heard.

104. Admiral *Yelverton.*] But it was merely an observation; they thought that the fire from the muzzle of the other gun endangered their loading?—They appeared to complain of the concussion.

105. *Chairman.*] Did you yourself think that there was more danger, owing to the guns being so close, in loading one whilst the other was being fired, than in the ordinary mode of carrying guns?—They are rather close together, but we understand in gunnery that all flame is blown from the muzzle.

106. Did you ever observe in night exercise, when you are firing to windward, that an immense quantity of sparks and fire will come right into the port, and over the deck. Do you not think there is more danger in loading a gun which is so close, than in loading a gun at a ship's port at the usual distance?—Yes; I should think that there was more danger in loading close. Of course, the nearer the guns are together, the more danger there is.

107. Would you yourself like to be No. 3, with a 70 or 90-lb. charge in your hand, as much as you could carry?—From what I have seen in the "Royal Sovereign," I should have no hesitation in loading the guns as No. 3 or 4. From what I have seen in the firing of those guns, I should have no hesitation in doing so.

108. Do you think that there is any difficulty or danger in working the two guns separate, one having nothing to do with the other, but firing them just as they are ready?—The safest plan decidedly would be to fire them both together. There might be danger in firing them separately, but I should myself have no hesitation in loading the one gun, and the other firing, as I have said before.

109. From what you know of working guns in a heavy sea, do you think that those guns in the "Royal Sovereign's" turret, or guns twice as heavy, that is to say, guns weighing 22 tons, could be safely and efficiently worked in the turret.

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turret. I am talking of a sea-way, when the ship is knocking about?—I consider that the present system of working the "Royal Sovereign's" guns is the only known safe way to work heavy guns, either the 300 or the 600-pounder. I do not say that it may not be altered.

110. Supposing that that is the only way of working them, do you think that even with that improved mode of working them in bad weather, taking such a gun as this, namely, of 22 tons weight, you would have sufficient command over it to mannage it with safety and efficiency?—I decidedly think at present that that is the best way.

111. Do you think that you could do it, that you could work a 22-ton gun in a sea-way?—Yes.

112. When the vessel is knocking about?—I think that if it is possible to work a 22-ton gun at all at sea, the plan adopted in the "Royal Sovereign" is the best way.

113. If you were sent to sea in the "Royal Sovereign," where you would be exposed to a gale of wind, do you think that with the fittings at present inside that tower, without extra bolts to fix extra lashings to, you could secure those guns sufficiently to ensure their not capsizing, supposing the ship to be lurching in a heavy gale of wind?—I think that with the lashings which the gun has it would be perfectly secure.

114. Do you think that it would be safe in a sea-way, when the ship was pitching and rolling up to 10 or 12 degrees, to cast loose?—Perfectly safe. I saw a 300-pounder cast loose in the Portland Race when the ship was rolling 11 degrees.

115. Captain *Caldwell.*] What was the position of the gun then?—They ran it out on the starboard beam. They slacked the compressors and let the gun remain on the slide, and it did not move. I think that if we put a carriage on the deck and took of the trucks, it would capsize before it attempted to move fore and aft.

116. *Chairman.*] Have you had any difficulty in getting up the ammunition?—Not at all; double the number of guns might have been supplied very easily. We had three supplies to supply five guns.

117. You have no objection to the supply of ammunition?—Not at all.

118. Do you think that it is a prudent way to bring the cartridge close up under the muzzle of a gun?—No, and I have altered it. I do not think that it is safe.

119. It can be brought up through any of the other openings?—Yes.

120. Do you think that there is sufficient space and height to work the double gun efficiently and coolly in action?—Yes; I give my own opinion. I should myself have no hesitation in fighting the guns in that turret.

121. You think that there is room enough to fight them efficiently?—Yes.

122. Captain *Caldwell.*] Would not a little more height be an advantage?—Yes; but speaking of that itself, there is no fault to be found with it.

123. *Chairman.*] With regard to pointing the guns, do you think that you can point the guns at the object, and lay them for elevation as quickly and as well in that mode on board the "Royal Sovereign" as you can do it in the old fashion by looking along a gun, particularly as to laying the gun for elevation at an object moving?—Yes, if we knew the heel and the distance.

124. But the heel is varying every minute, the ship is always moving. I am talking of independent firing, where you cannot depend upon the roll of the ship bringing it on. Do you think that it is as efficient as the old way?—The distance being known it is equally as efficient as the other.

125. But as to time; if the ship was constantly moving, do you think that you would be as quick as I should in an ordinary ship. I refer to the sight. You understand that when I speak of laying a gun at such an object I keep my eye on the sight. To lay the gun in the same way with a top-sight, can you do it so quickly as in the old way?—Yes, equally. If the distance is known, the captain of the turret gives directions to the captain of the gun. The internal sights are fitted to give the gun the necessary elevation, and I do not see why the captain of the gun should not fire the gun as quickly as in any other way.

126. The sight has degrees marked on it?—Yes.

127. The captain has to move it up or down, and then has to take his eye off the object and look at the number of degrees on the sight, and to call down to the man the number of degrees which he is to allow, and No. 2 has to lay that number of degrees on the side scale, and to call "well;" but the gun is off the object long before all this is done. Whereas, in the other case, I am looking along, and I say, "well"—"ready"—"fire." I am talking of laying the gun, and not pointing it, supposing that the ship does not roll it on for you, but that you have to do it yourself?—The distance is known, and as far as regards lowering and raising the ship, we could refer to the pendulum the same as in any other case. I see no reason why the gun should not be fired as quickly from turrets as from broadsides with the present system of sighting.

128. Captain *Kennedy.*] And you have had a good deal of experience of both?—Yes.

129. Captain *Caldwell.*] You do not want to alter your sight after you know the distance?—No; you know the distance and you give the elevation down below.

130. Captain *Kennedy.*] Might there not be a slit in the turret?—I think that a slit in the turret would be a great advantage. When we know that the gun is at the necessary elevation, when the top sights are horizontal, we know that the shot will pass between the target and the horizon.

131. Captain *Caldwell.*] What is the least number of men who can work a double turret?—I have superintended casting the gun loose with all the sea-fastenings, running in and running out, and loading, with the 12-gun numbers.

132. *Chairman.*] With how many men altogether?—Twelve men.

133. Admiral *Yelverton.*] Without any auxiliaries?—Yes, allowing the auxiliaries to be on deck placing boats, or doing other work.

134. *Chairman.*] You have done it with 12 men?—Yes, slowly.

135. What is the number of men allowed by Captain Coles' plan?—Thirty men to a gun, and two powder men.

136. That is 32 to each gun?—Yes.

137. That would be 64 men for the double turret?—Yes.

138. Captain *Caldwell.*] Do you think that that number is more than is really necessary?—Yes;

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Yes; if the guns were fitted with winches for running the guns in more quickly in action. I consider that 24 men and a powder man could work the double turret, and 16 men and a powder man the single turret.

139. What is the least number of men with which you could work it efficiently?—With the present fittings not less than 30 men to a gun.

140. *Chairman.*] Are there any advantages which have struck you in the guns mounted in the turrets over guns mounted in the other way, except as regards training?—Yes, in elevation there is nearly a double increase of elevation. From a broadside port with a 300-pounder, you would not get more than nine degrees.

141. But is that due to the turret system; is it not owing to the different way in which the gun is mounted?—I mean that a ship with guns mounted in a turret, if she had speed, could lay off 1,000 yards from a ship with a broadside, and the turret-ship would be striking the other, and the other would be firing 1,000 yards short, that is by the system of lowering the gun, or the chocks allowing more elevation to be given.

142. What is to hinder that being done with a broadside gun—it might, perhaps, not be quite as much—I am supposing each gun to be fitted as well as you can fit it, and that the ports are of the same size, what is the advantage in putting them into a turret above putting them into a broadside?—How could those screws for raising and lowering the gun be put into a broadside ship, unless you intended to keep the gun square?

143. Admiral *Yelverton.*] The chocks are fixed underneath the bed?—Yes.

144. *Chairman.*] The advantage is the great facility of giving elevation by removing the chocks?—Yes; there is probably an increased elevation with broadside guns as now fitted.

145. Captain *Kennedy.*] Can you give the gun much depression?—We can give between five and six degrees of depression on the upper step.

146. *Chairman.*] Are there any other advantages which you have to state in a turret-ship?—There is the facility of training the guns; the gun in working in a heavy sea-way, as at present mounted, is so well under command.

147. Then you think that a heavy gun mounted in a turret would be more efficient, particularly in a sea-way, and more easily worked than in a broadside?—Yes, it is easier and safer, and there is also better protection to the gun's crew.

148. Have you observed whether the smoke clears away more quickly from a turret-ship than it does from a broadside ship; the smoke in a broadside ship holds a long time?—I have found no inconvenience from the smoke.

149. Have you observed that it goes away more quickly than in a broadside ship?—The port is so small that there is scarcely any possibility of its coming in.

150. I refer to seeing your object?—I have found no inconvenience from the smoke.

151. And you did not observe that it cleared away more quickly than in a broadside ship?—In the turret in which I was all day, I certainly did not find any inconvenience.

[The Witness withdrew.

Adjourned till To-morrow.

Admiralty, Thursday, 11 *May* 1865.

PRESENT:

Vice-Admiral the Earl of LAUDERDALE, in the Chair.

Rear-Admiral Yelverton.
Captain Caldwell.
Captain J. J. Kennedy.
Captain H. B. Phillimore.

Lieutenant HENRY K. LEET, Her Majesty's Ship "Royal Sovereign," Examined.

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152. *Chairman.*] I BELIEVE you are Senior Lieutenant of the "Royal Sovereign?"—Yes.

153. Was there any gunnery officer in her?—There was one appointed, but he was only in the ship, I think, a fortnight; he was sick during the whole commission.

154. Admiral *Yelverton.*] In fact, he did no duty as gunnery officer?—No; or very little.

155. *Chairman.*] Were you in the "Royal Sovereign" when she went out to practice firing shot?—Yes.

156. Were you at any time in the turrets or on the top of them, particularly the turret which carries the two guns, when they were firing shot?—Constantly.

157. Both inside and on the top?—Both inside and out.

158. Did you find any serious inconvenience from the concussion, either inside or out?—None whatever, unless you went too far over the muzzle of the gun; if you went over the muzzle of the gun, of course the concussion was very great, but there was no inconvenience at all standing on the top of the turret abaft the centre, that is to say, half way in the rear of the gun.

159. Did you observe any difficulty in the working of the guns in the double turret comparatively with that of working other guns?—I fancy that the guns work better and quicker in the double turret than in the single. They fire more rounds with the two guns in the foremost turret than we do with any other two guns in the ship.

160. Will you explain to what you attribute that facility of working two guns?—There is a double crew. If the guns are fired as right and left guns they can be fired with equal quickness if not quicker than the single turret.

161. You

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161. You have given one reason, namely, that there is a double number of men?—Yes. In firing with shot that would make very little difference, because the guns recoil from the concussion, and they run out by themselves, so that the manual labour is very small.

162. You state that that is one cause, but a small one?—Yes; in practice we fire quicker with the two foremost guns than with any other two guns; in actual firing of shot I think that we fire as quickly.

163. I speak of your actual firing shot at a target, or at an enemy, and not of practising the guns, running them in and out, but working the guns when you are firing shot. Are you still of the opinion that, when you are firing shot at a target, or at an enemy, you would work the guns in the double turret quicker than single guns?—I think that they could be worked as quickly; I see no reason why they should not be worked as quickly.

164. Do you see any reason why the guns in the double turret should not be fired as alternate guns?—No; I see no reason if they are fired carefully; but I see reason that one gun should not be loading while the other is in the act of firing; I am supposing both guns to be out and loaded; the order would be given, "Right gun fire;" "Sponge and load;" "Run out;" "Left gun fire;" and so on.

165. What do you consider to be the danger in loading one gun whilst the other is being fired?—That the men loading would have 40 lbs. of powder in their hands within 6 feet of the explosion of the opposite gun; that is the only reason.

166. You have said that you have found no inconvenience from the concussion?—None.

167. Did you hear any of the men who were inside, either working, or loading, or sponging, who were near the muzzle, complain of the concussion?—No.

168. Captain *Kennedy.*] Not even No. 3 or No. 4?—No.

169. *Chairman.*] Did you hear any of the men allude to the danger of handling the cartridge so close to the gun which was firing?—On the occasion when we went out with the Admiralty, the double turret was filled up by Marine Artillery, who were accustomed to the single turret, and had never been in the double turret before, and they objected to the right gun being fired while the left was being loaded by them.

170. Do you recollect whether they gave any reason; did they say that it was merely in consequence of what they thought was the danger, or that it was in consequence of the concussion?—It was the danger which they meant; it was the danger which I understood, certainly.

171. And not the concussion?—Not at all.

172. Captain *Kennedy.*] Had the "Royal Sovereign" mantlets?—Yes, to cover the ports.

173. Would not those have stopped any fire or flame approaching the cartridge?—Yes, possibly.

174. Will you describe the mantlets?—The mantlets are made of cork covered with hide, about 4 feet deep by 3 feet wide, they are slung over the gun at the muzzle, meeting in midships, and are parted by the gun running out, closing again as the gun comes in.

175. *Chairman.*] The guns could be sponged and loaded with the mantlets down?—Yes.

176. Admiral *Yelverton.*] Would not the opening between the mantlets admit fire?—Certainly.

177. *Chairman.*] Did you ever see the turret when they were working it, either when firing shot or otherwise, get jammed by anything accidentally getting in?—Never.

178. Do you know that it can be easily stopped?—The turret might be stopped by anything getting under the rollers; but those rollers are considerably below the upper deck; about 5 feet.

179. If any bit of iron got between the cogs of one of the wheels, could it possibly revolve?—Yes, I do not think that it would make any difference. In case of a jamming in any way it would be only to turn back and clear it. I should think that it might be jammed, although I never saw it jammed, but I should think that it would be very easy to clear it if it was jammed.

180. Do you think that it could be easily jammed by driving iron wedges down from the top?—I think not.

181. Are you of opinion that it could easily be prevented from turning, either purposely or accidentally, by pieces of wood or iron, caused by splinters getting in?—I have never seen the turret jammed since I have been in the ship; we turn the turrets every morning, and upon no occasion have I ever seen the turret jammed. I think that if a shot got in through the ship's side into the lower gear, it might very likely stop it, in the same way as if a shot entered the port and struck the carriage of a broadside gun, the gun would not work any more.

182. During the time that you were in the ship was it never tried to see how small a piece of wood, or iron, or rope, would stop the working of the turret until that substance was removed?—Yes; I saw Captain Key put small nails about four inches long under the rollers, and they were completely flattened without stopping the turret a bit, and they were the largest that I could find at the time.

183. Did you ever see the end of a 3-inch rope put in under the roller?—No.

184. Do you recollect the dimensions of the turret of the "Royal Sovereign." I think you will find from the plan before you of the "Royal Sovereign's" big turret, that it is about 15 feet from the lower deck to the top of the tower?—Yes.

185. Of that 15 feet there appears to be only about 6 feet 3 inches protected by the circular armour plate?—Yes.

186. Leaving about 8 feet 9 inches, which is only protected by the 5½-inch armour plates on the ship's side?—Yes.

187. Supposing the turret to be impregnable to shot, that is to say, the first part of it which is covered with the armour plates, leaving the other part only protected by the flat side in the usual way, do you think that the machinery, and the men who are at the training tackles, or at the running-out tackles for working the gun upon the lower deck, would be better protected than if there was no turret at all?—Yes; I think that the men are as much protected as it is possible for men to be; a great deal more so than men firing with an open port in a broadside, with no 5½-inch plate between them and the enemy's shot.

188. Supposing that a 6-inch plate in a straight-sided ship will not keep the shot out, do you think that under that arrangement of the turret these men or the machinery for the guns are better protected. Would the men who are down below, and

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and the machinery, I mean the cog-wheel, the winch, and the other things, be protected in any way by the construction of the tower; would it not simply depend upon the strength of the plates on the side of the ship?—It would certainly depend on the strength of the plates upon the side of the ship.

189. Then am I to understand that you think that it would only be the guns and their carriages, and the men who are actually in the turret working the guns, who would be perfectly safe, supposing that the plated part of the turret is impregnable, and that the sides of the ship are not impregnable?—Then, of course, the others would not be safe. The deck of the "Royal Sovereign" is the only part through which I should think that a shot might enter from any gun afloat. To work one of these heavy guns on the broadside of a ship you must have machinery to do it, and that machinery could be much more easily knocked over than the turret. I am not aware that there is any gun now afloat in a sea-going ship which will penetrate the side of the "Royal Sovereign."

190. Is there greater facility in training the guns in the turret than in training guns mounted in any other way?—Yes, very much more.

191. What do you consider to be the great advantages of the turret system in a sea-going full-rigged ship?—I think that it has very great advantages. In the first place, one gun does the work of two; you get a great deal more training, and the gun is worked smoother and better than it can possibly be worked upon the broadside, as far as has yet been tried. The men, the gun, and the carriage are better protected, the port being very much smaller than it can be upon the broadside, inasmuch as in a broadside it is cut away for training, and, therefore, becomes the weakest part of the ship, whereas it ought to be the best protected.

192. Will you explain what you mean by one gun doing the work of two?—The gun can be fired in any direction. To continue the advantages of the turret system, supposing a turret-ship and a broadside ship to be thoroughly disabled, as far as masts, screw, and rudder are concerned, the turret-ship can continue the action in any direction, whereas the broadside ship can only engage under the advantage of a small angle of training.

193. Have you ever seen the 600-pounder gun called "Big Will"?—No.

194. Do you know about the weight of it?—It is almost 20 tons, I should think.

195. Have you ever considered the feasibility of carrying two such guns in a turret?—I see no reason in the world why they should not be carried as easily as 12-ton guns.

196. In a sea-going ship?—Yes; taking my experience from the 300-pounders, or 12-ton guns which we have on board the "Royal Sovereign." When we first went in this vessel, we expected to be shaken to pieces, but we felt no inconvenience, and not so much as you would feel from a broadside, or from firing an ordinary salute. I do not see why the 600-pounders should be much worse.

197. We will suppose that there are two vessels fitted as sea-going ships of nearly the same size, the one with four 12-ton guns, two on each broadside, protected by what they call the box system, and the other with two 20-ton guns in one turret, as upon the plan before you, which of the two ships would you choose to command, supposing that their steam power and sailing qualities were equal, bearing in mind that in the turret system the upper deck of the turret-ship would be more exposed to the wash of the sea?—I should rather command the turret-ship even with one 600-pounder in it, than I would command any ship full of 150-pounders, because if you put one shell into the enemy, she would not want to fight any more; the range also would be greater. A 600-pounder would put a shot through the armour plate at any distance, when the other would not.

198. Are you aware that the 12-ton gun will pierce a 5½-inch plate, even well backed?—It might do so when flat, but it will not do so when shaped, as in a turret; and in the rear of the turret where there is 5½-inch plating, the turret is much rounder than in front, where it is double; and I think that the probability is that nine shots out of ten would glance off it.

199. Captain *Kennedy.*] Then the turret is not round?—No; no turret in the "Royal Sovereign" is round. It is flatter at the port to allow the guns to go further out, and to balance the turret; and in consequence it is double-plated 6 feet each side of the port.

200. *Chairman.*] In giving your answers, have you taken into consideration the point upon which you have been previously examined, namely, that it is only about 5 feet 6 inches of the upper part of the turret in which the guns are placed, which is impregnable?—Yes; I have considered that.

201. We will suppose that the other ship, of which you have your choice, is plated with the same?—Yes.

202. And you see no reason to change your opinion?—No.

203. Admiral *Yelverton.*] Have you seriously considered the chances of meeting with two ships?—Yes; I would sooner have command of her under any circumstances.

204. Captain *Kennedy.*] Have you considered that in engaging two ships, one would be firing at the weak side of the turret, without receiving any shot in return?—Yes; I believe that none but a chance shot would strike it fair. I think that nine shots out of ten would glance off in all probability; it has never been tried.

205. *Chairman.*] Are you aware that in a turret of these dimensions, namely 26 feet in diameter, which would be 2 feet larger than the large one of the "Royal Sovereign," to enable it to carry 600-pounders, in a chord of 12 feet 6 inches, there is only a curve of 20 inches in that large space, and that almost a flat surface of 12 feet by 7 would always be presented to the antagonist?—The experiment has never been tried, and it is impossible for me to know more about it than anyone else. I would sooner be in a turret than in a broadside.

206. Captain *Kennedy.*] Have you ever reflected on the fact that the surface is almost a flat surface of 12 feet by 7, and that that is always presented to the enemy?—I have not, before coming into this room. In the "Royal Sovereign," I was a long time before I knew that the two-gun turret was more in diameter than the other turret, and yet it is two feet larger in diameter.

207. *Chairman.*] When you speak of the almost certainty of the shot glancing off, have you previously considered, as is shown by the model before you, that there is only a curvature of 20 inches in a space of 12 feet 6 inches?—No; but I still consider

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consider that it would be very hard to strike the turret fair.

208. With reference to your last answer, have you ever considered that in firing against a broadside ship you would never get a direct shot at her, except when you were firing right abeam; that is to say, except when the bore of the gun fired was at right angles with her side?—I have not considered that point. In continuation of the advantages of the guns mounted on a turret, I may mention the large elevation and depression which can be got out of a gun in a turret.

209. At what depression could you fire the guns of the "Royal Sovereign" with shot right abeam, and as far a head as you could set your turret, stating, as nearly as you can recollect, the different degrees in the various positions?—On the beam 4½ degrees depression. I cannot work it out before the beam, but I know that it is not quite so much.

210. Do you know what depression the gun had when it was fired on the occasion upon which the shot struck the wooden covering over the hawse pipe, or had it any depression at all?—I am not sure, but I believe that it had about two degrees depression.

211. Captain *Kennedy.*] What would you do in fighting a weather gun if the ship was heeling 5 degrees, so as to hit an enemy near?—I still think that the advantages of the turret system are very great, and I would never allow the ship to be in that position, and if necessary, I would take advantage of the large elevation by shortening sail, and letting the ship come upright.

212. Captain *Caldwell.*] In that case, by diminishing your speed, would you not allow your enemy to escape, if chasing her, or if you were chased, would you not be subject to capture?—Yes; but I was not alluding to chasing, or being chased, in answering the previous question.

213. Captain *Phillimore.*] How many rounds do you suppose you could fire in five minutes at a ship of the same size as the "Royal Sovereign," 1,000 yards off, from a gun in a single turret in the "Royal Sovereign" at sea, the ship rolling above 5 degrees each way?—With a well-trained crew I should think three times in five minutes.

214. Captain *Kennedy.*] In your opinion is the captain of the turret much exposed?—Not more than is necessary.

215. But is he exposed?—A part of his head is.

216. Not the whole of his head?—No; excepting in certain positions he has a screen round his head.

217. Is he much exposed if the ship is rolling?—It is only his face which is seen.

218. *Chairman.*] The captain of the turret fires and looks along the sight?—Yes.

219. Consequently, it is upon him that the accuracy of the shot entirely depends?—Yes.

220. Is he not more exposed than any other men at the gun, or in the ship?—Yes.

221. Do you think that he is likely to take his aim and to act as coolly as if he was down at the gun in the turret, or as if he was in an ordinary vessel?—He would, of course, be more exposed; but I think, at the same time, that he has the advantage over a man firing a broadside gun, of seeing his object coming on. In the case of a broadside gun it might be off and on before he could catch it.

222. Are you aware, as I have repeatedly endeavoured to explain to you, that the Committee in putting questions to you are quite as anxious to hear the advantages as the disadvantages of the turret system, and have you borne that in mind in framing your answers?—Yes.

223. Captain *Kennedy.*] Speaking of the "Royal Sovereign," do you consider the arrangements for the accommodation of the officers and men, for their health and comfort, and their protection from weather, both at sea and when the vessel is cleared for action, good?—In the "Royal Sovereign" I think that the arrangements are very fair, both for officers and men; but I think that no iron ship is very healthy; there is a dampness in them, and in hot weather we feel the want of side ventilation.

224. Will you also tell me, as first lieutenant, whether you consider the arrangement for the stowage of water, stores, and provisions, good?—Yes, very good, indeed.

[The Witness withdrew.

Adjourned.

Admiralty, Friday, 12 *May* 1865.

PRESENT:

Vice Admiral the Earl of LAUDERDALE, in the Chair.

Rear Admiral Yelverton.
Captain Caldwell.
Captain J. J. Kennedy.
Captain H. B. Phillimore.

Mr. JOSEPH SCULLARD, Draughtsman, Portsmouth Dockyard, Examined.

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225. *Chairman.*] THESE are the drawings furnished to us by the Admiralty, of the vessel proposed by Captain Coles with one turret to carry two 600-pounder guns; have you seen those drawings?—Yes, I made these drawings.

226. You are a draughtsman?—Yes; I am chief draughtsman at Portsmouth Dockyard.

227. Had you anything to do with the calculations relative to the various weights?—Yes; I did the whole of it.

228. In the statement forwarded to us by the Admiralty, and which was received from Captain Coles, the weight of the turret in the proposed vessel complete, is given as 146 tons?—Yes.

229. By the calculations sent from the Controller's Office, and which I believe came from Portsmouth Dockyard, the weight of the large turret of the "Royal Sovereign," which is only 24 feet 6 inches in diameter, appears to be 162 tons?—Yes, that is the turret for the two 300-pounders of the "Royal Sovereign."

230. As I believe from what appears by the

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drawings, that the turret in the proposed ship is to be nearly two feet more in diameter, if it is of the same strength, how can it weigh only 146 tons?—The turret for the two 600-pounders, as at present designed by Captain Coles, is differently constructed, the frames are different, and I think that the arrangement altogether is different. Also, this ship being expressly constructed for a turret, the right height is given between the decks, whereas, in the "Royal Sovereign" the upper deck is raised very much, and then you have to build up a large wooden bed to receive the turret, which will not be required in this ship. I think that the upper deck of the "Royal Sovereign" was raised about 2 feet 6 inches, and, of course, you had to build up an immense wooden bed to receive the turning gear, and so on, of the turret. In the proposed ship you will not want all that weight, as the bed and supports for the turret will be of iron instead of wood, which will very much lessen the weight, and will be equally strong.

231. By what you have now explained, you account for the difference in the weight?—Yes.

232. Would the two turrets be equally strong?—Yes; the turret for this ship is constructed from the same centre, the guns and the turret work on the same centre, and not on two centres as in the case of the "Royal Sovereign;" that would lessen the weight again, because the frames to receive the armour plating would not be so large through.

233. Are the turrets in the "Royal Sovereign" a perfect circle?—Yes.

234. And also in the proposed ship?—Yes.

235. You have said that the explanation which you have given would account for the difference of weight?—Yes.

236. Will you be so good as, in a rough way, to give the various weights which the different alterations would produce?—The weight of the large turret of the "Royal Sovereign," as given me by Captain Coles, is 133 tons. Captain Coles gave me the weights.

237. He calculated them himself?—The weight was given to Captain Coles by the Dockyard officers.

238. How do you account for the difference between the weight of the turret given by Captain Coles and that calculated by the Dockyard?—I can only say the same as I said just now, that the bed to receive the turret of the "Royal Sovereign" is so very large.

239. Do you know the weight of the large turret of the "Royal Sovereign?"—Yes, 133 tons, without the bed.

240. The calculated weight by the Controller's Department is 162 tons; how do you account for that difference?—That would be the bed and the large iron supports under the bed.

241. You suppose that the bed and the supports have been taken in in one case, and not in the other?—Yes.

242. In the calculation of the weight of the proposed turret in Captain Coles' ship, is the weight of the bed and supports included?—Yes.

243. What does Captain Coles give as the weight with the bed and the supports?—He only gives me the weight of the turret with all its gear fully fixed, part on the lower deck and such like, as 133 tons.

244. Captain Coles takes no bed nor supports underneath his bed?—No.

245. That will account for the difference?—Yes.

246. Captain *Phillimore.*] The new ship will not want a bed?—No, and I suppose will not want the same supports, as the ship is of iron.

247. *Chairman.*] Does the Dockyard calculation include all the wood and iron used for the turret and its bed?—Yes.

248. Have you calculated the working space inside the proposed turret for the two 600-pounders?—Captain Coles has done that.

249. How much is the proposed turret in diameter?—The outer diameter of this turret is 26 feet 4 inches.

250. What is the outer diameter of the large turret of the "Royal Sovereign?"—24 feet 6 inches.

251. Then the proposed turret is 1 foot 10 inches in diameter more than the large turret of the "Royal Sovereign?"—Yes.

252. Is the proposed turret of the same height from the deck?—The turret for the two 600-pounders is 5 feet 4½ inches above the deck. The turret for the two 300-pounders is 5 feet 6 inches. The port-hole is nearer the deck in the two 600-pounders. The distance between the guns is 7 feet 3½ inches for the two 600-pounders.

253. Therefore the turret of the proposed ship will be one inch and a-half lower than that of the "Royal Sovereign?"—Yes; but the lower port sill in the proposed turret is rather lower than in the "Royal Sovereign."

254. Are you aware of the space which will be actually taken up by the two 600-pounder guns, so placed in the plan?—The distance between the centres is 7 feet 3½ inches for the two 600-pounders, that is from centre to centre of the gun. In the case of the 300-pounder guns, the distance is 6 feet from centre to centre.

255. Are you aware of the distance from the trunnion of one gun to the trunnion of the other?—No.

256. Will you look at the drawing and state it?—The distance is 13 inches.

257. Am I to understand that 13 inches is about the space between the working parts of the carriages of the two 600-pounder guns?—Yes.

258. Will you look at the drawings for the two 12-ton guns in the large turret of the "Royal Sovereign," and give the distance between the carriages of those guns?—Twenty inches.

259. In looking at the drawing, and looking at the scale of the drawing of the gun, can you tell me what height there would be from the top of the gun to the inside of the grating?—I could not tell you that. I do not know what height Captain Coles gives the centre of the gun.

[The Witness withdrew.

Captain Leopold G. Heath, c.b., Examined.

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260. *Chairman.*] I believe that you are Vice-President of the Ordnance Select Committee?—I am.

261. The functions of the Committee relate both to the construction of guns, and to the effect of shot upon the iron targets, which are supposed to represent the sides of ships?—The Committee's functions extend over everything connected with army

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rmy stores and guns, and powder, and equipments of all natures.

262. Do you consider that a 12-ton gun capable of carrying the heaviest charges, namely, one-hird of the weight of the most destructive round hot, will penetrate through any of the targets which are supposed to represent the side of a ship, or will penetrate the sides of any armour-plated ship which you have either seen or heard of in this service, or in any other, say at about 500 yards?—I think that a 12-ton 9-inch gun might fairly, if necessary, carry a heavier charge than it does now; and I think that then it would penetrate any target ship which I have yet seen. I hear that plates of nine inches are going to be applied to the "Hercules," which, if true, would alter my opinion. I think that a 9-inch plate would probably withstand even that shock at 500 yards. I think that no gun which you have will penetrate a 9-inch plate with a proper backing.

263. Do you include in that answer the 22-ton gun commonly called "Big Will"?—Yes.

264. When fired with its heaviest charge, namely, 90 pounds?—Yes. I ground the opinion upon having seen "Big Will" fired with a 90-pound charge of powder, and a round steel shot at an unbacked 11-inch plate; it penetrated only 4½ inches at 200 yards. On another occasion, an elongated steel shot, weighing 603 pounds, was fired with a 70-pound charge against what was called the "Box-Target," being a thoroughly well-backed 6·5-inch plate; it but just passed through. I should like to add that I think "Big Will" is a bad gun for its weight.

265. Do you think that there would be any insurmountable difficulty in making guns of that size, which would stand the necessary number of rounds?—It evidently depends upon the precise meaning of the words, "the necessary number of rounds." The average life of a cast iron 68-pounder under the existing regulations as to condemnation, is under 200 rounds. "Big Will" has fired certainly more than 150, and I can furnish the Committee with the exact number. I do not know why the public always consider that you must either have 12-ton guns or 22-ton guns; it seems an extraordinary thing that people think there can be no intermediate gun.

266. Looking at the proposed turret in that drawing, which is supposed to contain two 600-pounder guns similar to "Big Will," and covered with 6-inch plates all round, backed with 18 inches of teak, and an inner skin of half-inch iron, except for 12 feet, which is the distance between the ports and on each side of them, where it is covered with 10-inch plates, but with a reduced thickness of backing, do you think that there would be a certainty or probability of breaching it or destroying it with the 12-ton guns at a distance of about 500 yards, using the heaviest charges and the most destructive shot which the gun will stand, and taking into consideration that in the proposed turret there would be a curvature of 20 inches in the space of 12 feet 6 inches?—I think that the 9-inch 12-ton gun would penetrate the lighter portion of the turret: I do not think that it would penetrate the more solid portion, but I think that a continuous fire carried on long enough would destroy it. One main supposed advantage in the turret system is, that you revolve the turret with its ports away from the enemy whilst loading the guns; in that case the weaker portion will be in front of the enemy's gun, and at any distance requiring a moderate elevation, or in any rolling sea there are chances of striking the roofing of the turret. With respect to the advantages of the curvature in a defensive point of view, it depends entirely upon the direction of the shot; if fired straight at the nearest point of the target, it is practically like striking a plane surface.

267. Do you consider that the nearness of the ports would not be a source of weakness, as regards the strength of the plating?—It must have a tendency in that direction. I think that in most of our iron-clads there is not sufficient bolting to the plates. I think that the tendency to the buckling of plates struck by heavy shot ought to be more considered.

268. In whatever position the turret-ship was placed with regard to her adversary, would not the adversary always have a direct shot at the nearest point of the turret towards him?—Yes, if he pleased.

269. Would that be the case with the side of a ship carrying her guns on the broadside, such as the "Warrior"?—Not necessarily.

270. Would you ever get a direct shot at the straight part of her side, except when the bore of the gun from which you were firing was at right angles to the line of her side?—No.

271. With well-trained gunners, do you think that there would be an impossibility, or any great difficulty, even with a ship in motion, say rolling five or six degrees, at a distance of 500 or 600 yards, in striking the turret, or when she was rolling towards you, say about the same number of degrees, throwing shot or shell into the turret?—I think that a great deal depends upon the steadiness of the ship; and, under the circumstances named, a large proportion of shot ought to tell, but I can give no opinion as to what that proportion would be; I think that, notwithstanding the superior accuracy of rifled guns over smooth bores, yet the size of the breech in these heavy guns, their general unwieldiness, and the length of the priming tubes, will always diminish their chances of hitting a target in a sea-way, and they will probably not hit quite so often as the old-fashioned 32-pounder. I think that experiments might usefully be made with the 32-pounder, in a ship rolling at a certain rate, at a target of light construction, but of the same size as the turret. I think that the proportion of shot which struck would be a good guide to what you might expect with rifled guns.

272. Have you ever examined the large tower of the "Royal Sovereign," or were you on board the vessel when they were firing shot?—No; I have been over the "Royal Sovereign," but I have never been on board whilst they were firing. I have only made a cursory inspection, not an official one.

273. You observed the two 12-ton guns mounted in her?—Yes.

274. Do you think from the cursory view you had of her, that two 22-ton guns resembling "Big Will" could be efficiently worked and fought in the proposed tower, which would only be one foot 10 inches more in outside diameter, and about the same space as to height?—I have been but once on board the "Royal Sovereign," and then unofficially. My opinion is not therefore of much value on this point; and I can hardly suppose that the design would be submitted without full consideration having been given to the size of the guns,

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guns, as compared with the room in which they have to work.

275. In order to assist your opinion on that point, you will see by the drawings that there will be only 13 inches between the trunnions of the two guns?—I presume that the guns will be both run in and run out by machinery; and that as the sighting is from above the turret, the loading only has to be provided for by manual labour. I do not think, under those circumstances, that great space between the guns is necessary.

276. From your experience, the guns being close together, do you think that it would be quite safe or prudent to be loading or handling the cartridge of one of those large guns, whose cartridge would be from 70 to 90 pounds, exposing a considerable surface, while you fired the other, considering the large amount of fire which comes in at a port, or is blown over a ship, when firing to windward, which everybody must observe when firing at night?—Certainly not; but I think that if two guns are in one turret, their slides should be strictly parallel, and that the guns should be fired simultaneously, and, if possible, by one trigger line, in which case they would also be loaded simultaneously.

277. As you will see by the drawings that it is only the upper part of the turret which is so strongly plated, namely, from the top down to the underside of the upper deck, and that the lower part of it, containing the winches and the machinery for turning it, is only protected by the 6-inch plating of the flat side of the vessel, do you think that there is any greater security to the men who are in that part of the turret or machinery, than there would be in any flat-sided ships coated with the same thickness of iron, namely, six inches?—The drawing does not seem very complete, but it would appear so.

278. Have you particularly considered the system of pointing adopted in the turret-ship?—Yes.

279. Do you consider that it is as efficient as the ordinary system, particularly as to laying the gun with quickness when the ship has motion, more especially when you cannot trust to the ship to roll the object on?—I see no objection to the sighting in that respect, but I do not think that it is a system likely to remain accurate throughout a ship's commission, because of the number of intermediate parts between the sight and the gun. The sight is on the cupola, the slide or platform is fixed to the cupola; the carriage works on that slide or platform with a certain amount of play, and the gun works on that carriage also with a certain amount of play. You cannot, therefore, however well the sight may be fitted at first starting, ensure its always being truly lined with the axis of the gun.

280. Would there not be great facility in training the gun in the turret according to the proposed system over the ordinary mode of training broadside guns?—Yes; but I see no reason why heavy guns mounted on broadsides should not have training machinery.

281. Do you think that if it becomes necessary to carry guns of such weight as "Big Will," they could be carried as securely, and fought as efficiently under all circumstances on the broadside, or on the box system, or on any other system which you know, as on the turret system?—I never could understand that there could be any difference as to running in and running out, including the management of the recoil, between the broadside mounting and cupola mounting. If a gun mounted on a particular carriage and slide can be safely worked in a cupola you have only to lift it bodily, slide, carriage, gun, and all, with all its fittings, into a broadside port. I think that a 12-ton gun ought long ago to have been sent to sea on board one of the channel squadron, with decks thoroughly and properly shored up to test the working of these guns. I believe that the danger most to be apprehended will be the running out of the gun, when by any accident the compressors have been left slack, and the train tackle is not attended, and the ship is heeling outwards. I think that these guns should, at all events until we know more about them, be worked with regular train tackles and bollards in the deck.

282. If a ship was heeling over or rolling so that her leeports were in the water, could you fight a broadside gun with the same facility, supposing that you were able to fight a gun at all, as if it were right amidships in the position in which it would be placed in the turret?—No; the cupola gun could be most easily worked, but it would to a certain extent depend upon the relative heights of the guns out of the water, and the breadth of the ships, and points of that sort.

283. Do you think it would be advisable to build a ship specially designed as a sea-going ship, fully masted, to be armed with two 600-pounders, the whole armament to be within one turret?—Of what tonnage is the ship to be, and of what speed?

284. She is to be 2,400 tons, and to go 13·8 knots an hour. This question has nothing to do with a harbour defence ship, or a floating battery, but it is entirely with regard to a sea-going cruizer fully rigged, which would be liable to be attacked by two or more vessels?—My opinion is that you lose the principal advantages of the turret when you put it into a fully rigged ship. I think one of its greatest advantages is that you may follow an enemy on any bearing you please, and have your gun always pointing at the enemy. This requires a flush deck. I think also that for the general purposes of a cruizing ship, and considering that there are no foreign armour-clads at present which could resist penetration by guns very much smaller than those proposed, it would be much better to have a larger number of smaller guns. I think that the 12-ton gun is big enough for general naval purposes in the present state of the navies of the world, which would enable you to have four guns instead of two, and there should in any case be a certain number of much smaller guns.

285. Supposing you had four 12-ton guns, would you consider it better to have them within two turrets, or on what is called the box system?—It is a question which must be considered with respect to the relative weights of the protection given by the two systems. A given ship can afford a given weight for protection.

286. The comparative ships are supposed to be of the same capacity, and nearly the same displacement, and the total weight of armour plating to be about the same?—Then the answer which I should give would depend upon my opinion as to by which system I could get the most shots at an enemy in a given time. I think that when there is a small number of very heavy guns, provision should be made for working them all on one broadside. I think that some plan of a central turntable, and a shifting slide, could very easily be devised. The ports must be closer than usual.

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The guns would be usually worked in alternate ports. This entails somewhat greater length of box for a given number of guns, but doubles the power of the ship in action.

287. Are the Committee to understand from your answers that you consider that the proposed plan to arm and fit a sea-going ship with two 600-pounder guns in one cupola, is not the best and most efficient mode of arming?—I do not think that it is the best.

288. You have, of course, noticed the effect of flat-headed shot fired at different angles at iron plates. Do you think they would be likely to penetrate a circular plate of six inches?—The number of experiments made with steel shot against sloping plates is very small. As far as they have gone, there is no reason to suppose that flat-headed shot are better than round-headed shot, when fired at a sloping plate. The general result of the experiments is that the resistance to penetration of a given weight of iron plate, is the same whether it is upright or whether it is inclined, provided that the thickness of the two plates is so regulated that the section in the direction of the impact of the flight is the same in both cases.

289. Captain *Caldwell.*] Supposing that the turret-ship is heeling from 5 to 10 degrees, would a shot from an enemy's ship be likely to be deflected by the deck, which is of 1-inch iron, and covered by four inches of oak, or would it penetrate through the deck?—Steel shot from a large gun would undoubtedly penetrate.

290. Captain *Phillimore.*] Which of the targets that have been experimentalised upon do you consider the best target for resisting shot?—All the experiments against targets were made during the existence of the Iron-plate Committee, with which I was not connected. The "Bellerophon" target was fired at with charges of 35 lbs., whilst charges of 50 lbs. were used against the "Lord Warden" target, so that it is impossible to compare the results. I think, however, the "Lord Warden" is the best shot-resisting structure, but the "Bellerophon" the best adapted to ship-building purposes.

291. *Chairman.*] Irrespectively of the questions which have been put to you, are you aware of any points in a sea-going turret-ship in which she would have the advantage over a broadside?—I am not. I think that the advantages belong more to a vessel whose tonnage is large enough to carry only one gun, and which has no masts or rigging to come in the way of the line of fire. The ventilation and accommodation for the crew must depend upon the particular arragements made by the designer in each particular case.

[The Witness withdrew.
Adjourned.

Admiralty, Monday, 15 *May* 1865.

PRESENT:

Vice-Admiral the EARL of LAUDERDALE, in the Chair.

Rear-Admiral Yelverton.
Captain Caldwell.
Captain J. J. Kennedy.
Captain H. B. Phillimore.

Lieutenant HENRY K. LEET, further Examined.

Lieut. *H. K. Leet*.

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292. *Chairman.*] BY a letter which you have written to the Secretary of the Committee, it appears that you wish to make some addition to an answer that you gave to one of the questions put to you?—Yes; it was something that I omitted the other day with reference to an experiment tried before the Duke of Somerset; I thought it might be of some importance.

293. Will you state to the Committee what it is that you wish to add, and with reference to what question?—It has no reference to any question that has been put to me, it is simply additional; it is this: that after firing the guns from the turret in about 15 seconds the port and loaders can be turned out of the range of the enemy's fire.

294. Turned away from the fire? — Yes. Turned away from the fire, giving the advantage to the loaders of loading without being annoyed by musketry or heavy guns; the gun could be turned back into position when loaded in about 15 seconds.

295. Captain *Kennedy.*] Could it be turned right round in 15 seconds?—Not right round, but from right abeam to fore and aft, so that the port would be clear of the enemy's fire; a complete circle could be made in about a minute or less. I have seen it done in less by giving spells or reliefs. That completes all I have to say upon that point. When I gave evidence the other day as to the depression of guns in heeling, I wish to say that I referred entirely to the "Royal Sovereign." I do not know what depression could be given in the guns of the new turret-ship. The "Royal Sovereign" is not meant to heel; you can get in her 4½ degrees of depression. I do not know what it may be in the new turret-ship.

[The Witness withdrew.

Mr. JOSEPH SCULLARD, called in; and further Examined.

Mr. *J. Scullard.*

296. *Chairman.*] HAVE you seen Captain Coles since you were here the other day?—Yes; I was with him on Saturday.

297. Do you think the state of his health is such, that he is likely to be able to attend to business, or to appear soon before this Committee?—No; I do not think it is. In my interview with Captain Coles on Saturday, he told me that any questions that were sent to him he would answer in writing directly to the Committee.

298. When you were previously examined, I stated to you that there was a discrepancy in the statement

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statement of weight, given by Captain Coles, and the calculation of the Dockyard authorities, of the large turret of the "Royal Sovereign"; namely, by Captain Coles it is put down as 146 tons, and by the Dockyard authorities at Portsmouth, for the large turret of the "Royal Sovereign," at 162 tons; will you explain how that occurs?—I found, on conferring with Captain Coles on Saturday, that there was a misunderstanding between us as to the weight of the large turret for the proposed ship, and I have corrected the weights. Captain Coles wished me to hand in this Paper containing those corrections (Read):—

Dimensions, Stowage, &c., of the Sea-going Turret-Ship proposed by Captain C. P. Coles, R.N.

Dimensions:—	
Length between the perpendiculars	225 ft. 0 in.
Breadth, extreme	49 „ 0 „
Depth in hold	20 „ 2 „
Burthen in tons	$2,409\frac{52}{94}$
Draught of water—Forward	20 ft. 0 in.
„ „ Aft	22 „ 6 „
Displacement in tons	3,996
Horse-power of engines—Nominal	600
„ „ Indicator	3,600
Speed in knots	13·825
Immersion per inch at load-line	22·26
Area of sails in square feet	26,620
Height of centre of effort above load water-line	62 ft. 5 in.
Distance of ditto before centre of gravity of vertical longitudinal section	13 „ 6 „

Summary of Weights.

	Tons.
Weight of armour plating in belt	265
Ditto, on sides above belt	60
Ditto, on bulk-heads (5″ thick)	60
Ditto, on foremost bulk-head (4½″ thick)	22
Ditto, of wood backing in belt (10″ thick)	60
Ditto, on sides above belt	12
Ditto, and angle-irons in bulk-heads	25
Ditto - - - forward	10
1-inch plating on extremities of lower deck and on box	150
Total armour and backing	664
Turret complete (*exclusive of guns*)	*146*
Glacis plates	*11*
Fittings on deck, iron pillars, &c.	19
Total weight of turret, *glacis plates, pillars, &c.*	*176*
Outfit	1,377
Weight of armour and fastenings	529
„ Turret, *glacis plates, pillars, &c.*	*176*
„ Pilot house	30
„ Hull complete	1,850
Total displacement required	*3,962*
Surplus, ditto	*34*
Total displacement as per drawing	3,996

Corrected, 13 May 1865. *J. Scullard.*

Estimated Weight of Stores, &c., for Sea-going Turret-Ship.

	Tons
Water for one month	28
Tare of tanks	7
Provisions and spirits for three months	27
Tare of casks	6
Officers' stores and slops	8
Wood, sand, and holystones	4
Officers and men and their effects (225 No.)	27
Masts, yards, rigging, sails, &c.	102
Chain and hempen cables	54
Anchors	18
Boats	10
Warrant Officers' stores	30
Guns and carriages, 2 in No. 600-pounders	50
Powder, 150 rounds for each 600-pounder	20
Shot and shell	65
Small arms	4
Grape and canister	6
Galley	4
Condensers	6
Engines, boilers, &c.	561
Extra work on engines	25
Coals	300
Engineers' stores	15
	1,377
Weight of armour plates and backing	529
Ditto, turret complete	*146*
Ditto, *glacis plates, pillars, &c.*	*30*
Ditto, pilot house	30
Ditto, hull complete	1,850
Total displacement required	*3,962*
Surplus, ditto	*34*
Total displacement as per drawing	3,996

Corrected as in *italic*, 13 May 1865. *J. Scullard.*

"I find, on conferring with Captain Coles, in looking over the weights allowed for the turret, there has been a misunderstanding between us, as shown in *italic*; the weight given for the turret proper was 146 tons, exclusive of guns; but this weight did not include glacis plates or fittings on the deck, or pillars." —*C. P. C.*—13 May 1865.

299. Captain *Caldwell.*] What do you now make the total weight?—One hundred and seventy-six tons, that is, including everything for the whole turret.

300. Captain *Kennedy.*] Without guns?—Without guns.

301. *Chairman.*] What was it stated at in the previous paper?—One hundred and forty-six tons.

302. In the paper furnished to the Committee by the Admiralty, and received by them from Captain Coles, it appears that the weight of the proposed turret and fittings would be 146 tons, are the Committee to understand from the paper you have now laid before them, that Captain Coles has corrected the statement as to the weight, and that the weight is about 176 tons?—Yes; the turret complete, exclusive of guns, is 146 tons, but then the glacis plates are 11 tons, and the fittings to the turret, 19 tons, making a total of 176.

303. The total weight of the turret, and all fittings connected, then, will be 176 tons, instead of 146?—Yes; the glacis plates, the iron pillars, &c., belong to the ship, and not to the turret.

304. What do you state belong to the ship?—The glacis plates, the beds for the turret, and the iron pillars.

305. But if a ship is not fitted with a turret, we should have neither glacis plates, beds, or pillars?—Yes; but then there is a large hole cut in the upper deck, which cuts off all the beams, the plating of the deck, and the deck itself; it takes away so much weight, and the ship being of iron, there will be iron bulk-heads belonging to the ship to come up under the turret, which will also form a support, and these would do away with some of the iron pillars.

306. Which you mean would compensate for the weights of the bed and pillars?—Yes.

307. Captain *Caldwell.*] If the whole turret was taken away, and everything connected with it, it would not be 176 tons taken out of the ship, because you would have to replace part of the weight to make good the deck, would you not?—Yes.

308. Would that amount to 20 tons?—I daresay it would. It would almost make up for the iron pillars and the glacis plates. The hole in the deck is 27 feet in diameter, and the beams and iron plating on them are all removed.

309. *Chairman.*] Are you aware what number of men Captain Coles has calculated upon as a crew, and provided room for on the lower deck?—Two hundred and twenty-five officers and men.

310. What do you call the deck that they are berthed on?—The lower deck.

311. Do you know the difference of space that there is alloted to the crew in Captain Coles' vessel, as compared with the "Pallas"?—It is about the same.

312. How can it be the same, if in Captain Coles' ship the space amidships is taken up entirely with the turret and its revolving apparatus?—The tables are made a little longer, and carried a little further forward.

313. That is, there is the same space at the table?—Yes; I do not know that there would be the same cubic space, but I could soon ascertain that.

314. Has Captain Coles stated to you the number of men he proposes to work the two 600-pounders in the turret?—No; he has not given me any information about that.

315. I believe it will require, as Captain Coles allows, 60 men for the two 12-ton guns in the "Royal Sovereign;" allowing for the difference of weight of the two 600-pounders, it would require, say 80 men to work them; on looking at the drawing, do you think there will be space for those men who are outside the turret, which would be the large proportion of the number to work the gun?—From what I can judge of the "Royal Sovereign" I should think there would be.

316. But in the "Royal Sovereign" they are not confined by these athwartship armour bulkheads?—Seeing the men working on board the "Royal Sovereign," and comparing the space taken by them, I should think there would be room enough.

317. Are the scuttles shown in the drawing flush in the deck, or are they raised so as to impede in some measure the passage on the deck?—They are raised.

318. State about how high?—About 6 inches high; the combings are about 6 inches high.

319. Be so good as to state the number of feet that the armour-plating comes down from the top of the turret?—I cannot answer that question.

320. Admiral *Yelverton.*] I think you have it before you in your own drawing, have you not?—No, it is not shown there; that blue line is simply the outline of the turret.

321. *Chairman.*] Cannot you state the number of feet of the turret that is armour-plated?—No.

322. Cannot you tell us it by measuring it on the drawing before you?—No, this is only the outline of the turret shown.

323. Then is there no drawing amongst these that will show the exact quantity of armour-plating in depth that is to be put on the proposed turret?—No.

324. Captain *Kennedy.*] Do you know the thickness of the turret?—No.

325. *Chairman.*] Have you got the thickness of the backing?—No.

326. Captain *Kennedy.*] If a shot fired at the armour-plated ship entered immediately above the armour and penetrated the deck under the glacis plate, would it strike the fortified portion of the turret or merely its lower edge?—I cannot tell, because I do not know how far the armour-plating comes down.

327. Captain *Caldwell.*] Is there any protection to the working part of the turret, that is, the rollers upon which it works, besides the ordinary plating on the ship's side?—No, not that I know of.

328. There is no inner armour-plating of that kind (*referring to the plan*)?—No, there is a 6-inch armour and a backing, and two inner skins each three-quarters of an inch thick, as you will see by the description of the turret-ship.

329. That is the armour on the ship's sides?—Yes.

330. Supposing a shot entered immediately above the armour-plating at an angle of from seven to 10 degrees, would it enter the boiler as shown in this drawing?—It would enter the boiler.

331. At what angle would a shot entering the waterline at the bow pass below the foremost inboard armour-plated bulkhead?—About 10 and a-half degrees.

332. Captain *Phillimore.*] How many boilers will the new turret-ship have?—Four.

333. Captain *Caldwell.*] Between decks what will be exposed to shot above the armour-plating?—The funnel casings would be exposed above the lower deck.

334. *Chairman.*] Would all above the armour-plating be exposed?—Yes.

335. Captain *Caldwell.*] The whole height of the deck?—Yes, the whole height of the deck.

336. *Chairman.*] Do you mean it would be exposed if fired at from abaft or from a broadside?—Yes, but not from forwards.

337. Captain *Caldwell.*] What is the angle of the incline of the upper deck outside the turret?—About six degrees.

338. Captain *Kennedy.*] What is the distance from the outer edge of the turret to the outer edge of the ship, and how much would be defended by the glacis plate?—The glacis plate is all round the turret.

339. Do you mean from the edge to the ship's side?—No, about 2 feet 6 out from the hole in the deck.

340. Will you first give me the space, and then tell me how much of it is defended by the glacis plate?—The space is 9 feet 9; the glacis plate is about 2 feet 6 wide.

341. Then that would leave about 7 feet?—Yes.

342. What is the thickness of that portion of the deck?—Four and a-half inches oak, and one inch iron plating.

343. *Chairman.*] Have you seen a statement, or do you know the thickness of the armour-plating and backing of the "Bellerophon"?—I have seen a statement of it, but I can only speak from memory; it is 6 inches armour on 10 inches backing, with a double skin within, each three-fourths of an inch in thickness, on 10-inch angle iron frames.

344. Have you made a calculation as to the proposed ship being able to carry the various weights

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weights stated by Captain Coles in his letter, and yet obtain a maximum speed of 13·8 knots?—Yes, I made this calculation; I made all the calculations.

345. Is there anything in the form of the vessel that would lead you to suppose that she would be materially faster or slower than the "Pallas," a somewhat similar ship?—I think the speed would be in favour of Captain Coles' ship.

346. From the form of her bottom?—From the form of her body, and from her construction being of iron.

347. In the disposition of the weights?—In the disposition of the weights; the ship being of iron, I think there would not be so much direct resistance.

348. Is she designed to have bilge pieces?—She could have bilge keels the same as other similarly constructed iron ships.

349. That is the intention, is it?—Yes.

350. The difference between the draught of water in the proposed ship and the "Pallas" appears to be that, the latter being a wooden ship, has a deeper keel than the proposed ship, which is of iron; is that so?—Yes.

351. Does that account in a great measure for the difference in the draught of water?—Yes.

352. Admiral *Yelverton.*] Do you know the draught of water in the "Pallas"?—Yes, it is 18 feet 3 inches forwards, and 24 feet 3 inches aft.

353. *Chairman.*] Is the difference of the given tonnage between the two ships owing principally to the one being of iron and the other of wood, which affects the measurement?—Yes.

354. But in reality the actual available tonnage in the two ships is nearly the same?—Nearly the same.

355. Is there anything in the arrangements for steering that would lead you to think that the proposed vessel could be turned quicker than another vessel of similar length of keel and length of water-line?—No; I am not aware of anything that would do so.

356. Do you think she would turn as quickly in the water as any other vessel of similar dimensions?—Yes.

357. Admiral *Yelverton.*] Do you know how many water-tight compartments there are forwards in the new turret-ship before the ordinary bulk-head?—It would be divided off into numerous compartments.

358. But you do not know how many?—I do not quite know how many; it would be arranged according to the frames of the ship in the fore-part.

359. Do you believe these water-tight compartments would keep her afloat if they were all filled?—I think she would float.

360. Has she any water-tight compartments abaft, or only forward?—Abaft in the vicinity of the tube for the after piece of shafting.

361. Can you give the Committee any idea if the compartments forward were all filled with water through a shot entering, and there was no water in the after part, how much would be immersed?—I could not tell; I do not think you could get at it; that amount of weight before the centre of gravity is something considerable; it would make a considerable difference in her trim, of course.

362. Do you think it would expose the screw?—I do not think it would do that.

363. Admiral *Yelverton.*] Would not it expose the upper blade?—No, I think not.

364. *Chairman.*] In case the engines were disabled and the ship was obliged to be managed under sail when cleared for action, with the iron top-sides thrown down, would there be any protection whatever for the men on the upper deck either from shot or from being washed overboard by the sea?—No, not where the shutters would be turned down.

365. But if the ship was cleared for action on all sides they would be all down, would they not?—They would be all down, except where the top-sides are a fixture.

366. In your opinion could the men go anywhere near that part of the deck towards which the guns were firing?—Certainly not; I think not from what little I know of guns.

367. Can you explain how the anchors are to be stowed at sea, or can you state the number of heavy anchors she is to carry?—She would carry the same number and weight of anchors as the "Pallas."

368. And how are they to be stowed?—Similar to any other sea-going ship; they would be stowed similar to the "Royal Sovereign," for instance.

369. Admiral *Yelverton.*] Have you considered the weight of the tripod masts?—No, it was given me by Captain Coles; the masts and yards are to be of steel.

370. Not of iron?—No, of steel; 102 tons was the weight given me by Captain Coles.

371. Do you believe that the firing of these heavy guns will not materially injure the steel tripod masts?—No, I do not think it will injure them at all.

372. *Chairman.*] Not without the shot strikes them?—Not without the shot strikes them, and then the shot would be deflected probably.

373. Captain *Caldwell.*] When in action, is there any protection by iron plating to the crew employed, between decks, outside the armour enclosing the turret?—No, not any, unless they are on the orlop platform below the lower deck.

374. In what way are the wheel ropes protected and the steering apparatus, by armour or otherwise; are they led below the armour?—They are led below the main deck, below the armour.

375. Are they protected by the armour the whole way along to the turret?—Yes.

376. *Chairman.*] From the tiller to the steering wheel?—Yes.

377. Captain *Caldwell.*] In what manner is it proposed to stow the boats?—They would be stowed abaft the funnel in the ordinary way; two quarter boats and one stern boat, on the ordinary boat davits; the boom boats would be stowed abaft the funnel out of the line of fire, either abreast of each other or one within the other.

378. Where is it proposed to stow the spare spars, or does she carry any?—The spare spars would be very small.

379. Would she have as many as an ordinary ship?—No; she might carry two or three spare top-gallant masts, two or three small spars like that, but the lower masts and top-masts are in one.

380. *Chairman.*] Are the calculations stated in Captain Coles' letter made by you, of her capacity of stowage and weights to be carried, correct?—Yes; I believe they are correct.

381. Captain *Caldwell.*] As the armour belt extends only two feet above the water-line, are the vital parts of the ship, such as the boilers and the

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the magazine and the armour, completely protected by the belt?—Yes.

382. That is if a shot enters horizontally?—Yes.

383. Supposing a shot enters at an angle of from 10 to 12 degrees at the heel of the ship, in that case would those points be protected?—The magazines and shell-rooms would be protected, but not the tops of the boilers; at seven degrees it would just touch the corner of the boiler.

384. Would the boiler be completely protected by the armour?—Yes.

385. And the tiller?—Yes; and the magazines would be quite safe.

386. *Chairman.*] How many feet from the bow would the proposed vessel be unprotected by armour plate?—About 25 feet.

387. Could she be protected all round, and still maintain her efficiency as a sea-going vessel, as well as her speed?—Oh, yes; you could remove the foremost bulkhead, that would make up for part of the plating; there would be a little additional weight to make up for the remainder.

388. Which little additional weight you think would not materially impede her sea-going qualities or her speed?—Not at all.

389. Are you quite clear upon these points?—Yes, quite clear. It would not make any material difference, because you would taper the armour-plating towards the stem.

390. Do you know why Captain Coles has not continued the iron plating round the bows?—I believe it is a favourite plan of Captain Coles not to continue the plating round the bows; but to divide the fore-part of the ship into water-tight compartments, horizontally and vertically, thereby lightening the fore-extremity of the ship.

391. Admiral *Yelverton.*] In the event of shipping heavy seas, which as a sea-going vessel you are liable to do, would not a large amount of the water penetrate between the turret and the deck?—No; there is a thick leather flange edged with iron fitted over the hole which renders it quite water-tight.

392. Captain *Caldwell.*] In what manner is it proposed to secure the heels of the tripod, the back legs?—I believe the legs go through both decks, all the decks in short, and catch the ship's side as soon as possible, and run across the frames, and the legs are secured to the frames.

393. In your opinion, supposing that the centre mast was shot away, would the two back legs, standing at the angle they do, have sufficient strength to stand as they do now without falling?—I think they would.

394. Is there strength sufficient to enable them to do so, having as they would to support the weight of that portion of the mast which was not shot away?—Yes; I think each leg is supposed to be self-supporting.

395. They appear to be placed at a considerable angle to be able to carry all the weight of the upper part of the masts and yards?—It may not be at quite so great an angle as that. I have simply put that in to show how she would be rigged. Captain Coles will prepare detailed drawings of that if it should be required.

396. *Chairman.*] It is proposed to bring the chain to the capstan?—Yes.

397. Captain *Phillimore.*] Do any of the ropes lead down inside the tripods?—Some of them, I think, do.

398. All ropes used for shortening sail would come down inside, would they not?—I cannot answer that question for certain.

399. Admiral *Yelverton.*] Do you believe, in heavy rolling, the tripod will have the same strength as a common mast secured with rigging?—I think it would be very much stronger; it is all perfectly rigid.

400. Captain *Phillimore.*] Are all the ropes intended to be worked on the upper deck?—No; I think on the lower deck, to keep the upper deck clear. I think the upper deck is entirely clear; everybody is below.

401. Would they be able to tack or wear without any of the crew coming on the upper deck?—I cannot go into any explanation about the tripod masts. I have seen but very little of them, but I think that all the work is done on the lower deck.

402. *Chairman.*] Will you explain the discrepancy in your statement as to the weight of armour and fastenings between 529 tons in one place, and 514 in another part of the same statement?—I allowed 15 tons for fastening the armour-plates.

403. Captain *Kennedy.*] The weight of the armour-plated sides, bulkheads, and box in the "Pallas" is 560 tons, and the plating, pilot house, &c., in the turret-ship is 705 tons, is it not?—Yes; it is thicker armour on the proposed ship.

404. The weight she carries is a great deal more?—Yes, it is about 140 tons more.

405. What did you say the turret was?—176 tons, including the glacis plates, pillars, &c.

406. Admiral *Yelverton.*] Do you think, in a heavy sea, the rolling of a ship would be increased by the weight of the turret being above the centre?—Oh, no; it would be decreased; the turret is in the middle line of the ship. I think she would roll less than a ship iron-plated with the weight at the sides.

407. *Chairman.*] Do you mean she would not roll so deep or so quickly?—She would not roll so deep.

408. But would she roll quicker?—Yes, a little quicker.

409. Would the guns of the proposed ship be higher from the water, when the ship was upright, than the guns of the "Pallas," placed on the broadside?—The guns of the proposed ship would be higher. The deck of the proposed ship is 10 feet above the water, and the guns would be about two feet above that, making, in all, about 11 feet 6; that would be 3 feet 6 higher than the "Pallas."

410. In the event of touching the ground forward, have you any other means of bringing her down by the stern, but filling the after compartment?—You could fill the water-tight compartment abaft, and run the shot aft, as well as the anchors and cables; but I do not understand much of that sort of thing.

411. *Chairman.*] You could not move the guns aft?—No; I think not.

412. Admiral *Yelverton.*] You could fill the water-tight compartments sufficiently, I suppose?—Yes.

413. You have no idea what it would take to bring her down?—No.

414. Would it get her off a mud-bank?—Yes; supposing that she only touched forward.

415. Captain *Kennedy.*] Are you aware what depression could be given to guns in the new turret-ship?—I cannot answer that exactly, but, I think, from four to six degrees; I think there would be about 18 degrees elevation.

416. Can the guns in the turret-ship be turned in the direction of the keel forwards and aft, or how

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how many degrees from that?—About two degrees for firing right ahead, and about 13 degrees abaft.

417. In all other points they would fire clear, except in the wake of the legs of the tripod?—Yes.

418. What is the largest number of officers and men that the proposed ship could comfortably berth, according to the general arrangement of men-of-war?—I think she could stow 300 officers and men.

419. *Chairman.*] Is there the same space in the proposed vessel for the engines as there would be in an ordinary ship for engines of the same power and description?—Yes.

420. Is there any point upon which you have not been questioned relative to the advantage or disadvantage of the proposed ship that you are aware of, upon which you can enlighten the Committee?—I would say that she carries all her principal weight within the centre of gravity of the fore-body, and the centre of gravity of the after-body, which I think would make her a very easy ship at sea, and make her very buoyant; she would carry her weights well. I do not know of anything else, unless it is her carrying the weight at the middle line, as well as the turret and armament.

421. Do you think the carrying the whole weight of her armament in one turret is an advantage or a disadvantage, having regard to the seagoing qualities and strength of the ship; do you think having the weights in one turret is better than having them distributed in two?—I think so, because the weight of the turret and the armament would not exceed the weight of the engines, and you are obliged to have the engines in one small space; the turret and armament are placed over a very buoyant part of the ship.

422. Could the proposed ship carry two turrets of the size of the large turret in the "Royal Sovereign"?—No; she would not have displacement enough, I think, to meet that.

423. Are you aware of any other mode of arrangement with which the proposed vessel could carry the same weight of guns, equally well protected?—No; I do not think there is any other.

424. Did you ever see or hear of any other plan by which it could be done?—No, I think not.

[The Witness withdrew.

THOMAS LLOYD, Esq., Engineer in Chief of the Navy, called in; and Examined.

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425. *Chairman.*] WILL you have the goodness to look at the papers before you, which give the relative displacements and weights of the "Pallas" and of the proposed turret-ship. Supposing they had engines of the same power, have you any reason to think that the proposed ship would not come up to the speed of 13·8, supposing the "Pallas" to come up to 14 knots?—The difference, I think, would be about 3-10ths of a knot.

426. That is to say 3-10ths in favour of the "Pallas"?—Three-tenths in favour of the "Pallas," calculating from the displacements, but the speed depends, of course, in some degree, upon the state of the bottom. The speed of the proposed ship would be inferior to that of the "Pallas" if both the bottoms were clean, but bearing in mind the greater tendency of iron to become foul than copper, the mean speed of the iron ship would be more than 3-10ths below that of the coppered ship.

427. Will you look at the drawings of the proposed ship?—I have seen these drawings.

428. From which I think you perceive that the up-take is more exposed than that of the "Pallas"?—The up-take above the top of a boiler I do not consider to be a very vital part. A shot going through this kind of up-take would not do more harm than going through the chimney; in fact, it is a part of the chimney, not a part of the boiler itself; the up-take is a mere continuation of the chimney, and a shot through it would produce no more injury than a shot through the funnel; no steam would come out.

429. Would it not be likely to let flame out?—No more than the funnel would if it came straight down; a shot going through the lower part of the funnel, would produce exactly the same effect as a shot going through this up-take.

430. In fact the up-take is nothing more than a continuation of the lower part of the funnel?—Nothing more.

431. Then you think that that portion of the up-take which is exposed is not of material consequence?—I think not, and I think there would also be an indraught of air very likely. Of course, what an engineer likes is to get his funnel up straight from the boiler; this is a very ugly thing.

432. You think it not an advisable shape?—No; no one would make an up-take of that form if he could help it; but no doubt it was so designed on account of the position of the mast. At the same time I do not consider this kind of up-take an insuperable objection.

433. Captain *Kennedy.*] That would interfere with the draught, would it not?—Yes, it would; and to compensate for this the funnel would require to be a little longer, or a little more steam blast must be used.

434. *Chairman.*] Will you look at this drawing, No. 2, of the proposed ship; you will see by the the lines drawn, that if the ship were heeling over seven degrees, a shot might enter above the armour plating and touch the upper corner of the boiler; also, if she were lying over ten degrees, it would take a considerable portion of the upper part of the boiler; do you think that is a material point of weakness as regards the working of the engines?—Of course it would put the engine out of the control of the engineers for a time if a shot were to go through the top of the boiler. I consider that the quantity of steam that would escape, if the top of the boiler were penetrated by a shot, would send all the people out of the engine-room.

435. Captain *Kennedy.*] Might not that be obviated by having fighting boilers, without any great detriment?—In that case you would require more horizontal space for them. You could not reduce the height of a boiler like this without spreading it out either lengthways or sideways. Looking at this draft, I see that the boiler might easily be lowered one foot or 18 inches by rounding off the bottom of the boiler, unless the ship alters her form as you go forwards; that I cannot tell. Evidently the boiler might be brought down considerably.

436. *Chairman.*] You will see by the drawing that forwards the boilers and machinery are protected by athwartships armour-plated bulk-heads from

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om a raking shot coming in forwards; but should a raking shot come in aft through any part of the deck, there appears to be nothing to prevent it entering the boiler; is that so?—The shot must strike the deck very obliquely to strike the boiler; in fact, a shot striking so obliquely as that might hit the boiler from forwards; with the same obliquity, both the after and fore part of the boiler might be struck; the angle seems to be about the same, I think.

437. If a dropping shot, coming down at an angle of six or seven degrees, struck the ship anywhere abaft, is there anything to prevent it entering the boilers after passing through the upper deck, which is an inch of iron and 4½ of wood?—It must strike the deck very obliquely, and most probably it would be deflected.

438. It would go through the deck very obliquely, but if it did penetrate, there is nothing else to prevent its striking the boiler?—No.

439. From what you have seen of the drawings and the position of the machinery, boilers, up-take, and funnel, is there any material point from which it appears to you that they would be more exposed than in the "Pallas," so as materially to affect the safety of the ship?—Not materially.

440. Do you think that these engines are more exposed or worse situated than in any other ordinary ship?—I see no serious objection to the general proposed arrangement of the engines and boilers, except the up-take, but that I do not regard as a matter of very serious importance.

441. There is nothing in the arrangement that would, in your opinion, materially affect the safety of the ship?—I see nothing.

442. What do you say as to the want of protection from shot as compared with other vessels which you have seen of a similar size?—I think the machinery is scarcely so well protected from fore and aft shot as in ships which are plated all round; a shot might come under the upper transverse armour plate and over the other transverse armour plate, and strike the boiler; but that could not be the case if the bows were protected, as some ships' bows are. I observe that the boilers and machinery of the "Pallas" are better protected by the armour plating than are the boilers and machinery of the turret-ship, irrespectively of the thickness of the plates.

443. Do you mean better protected from raking shot, either fore or aft?—Both from raking shot fore and aft, and from a broadside.

444. Is there any point about the placing of the machinery or engines in the drawings of the proposed vessel, which it strikes you would tend to her advantage or disadvantage, and as to which you have not been questioned?—The general arrangement is a very usual one; I see nothing objectionable about it, with the exception, as I said before, of the up-take. Reverting to the question of speed, I see that the midship section of the turret-ship is much greater than that of the "Pallas," so that unless the lines of the turret-ship are finer, she would not have the speed I mentioned. (*The drawings of the "Pallas" were here produced.*) Taking the midship section of the turret-ship at 905 square feet, and her displacement at 3,996 tons, and the midship section of the "Pallas" at 760 square feet, and her displacement at 3,668 tons, I find the speed of the turret-ship would be about half a knot less than that of the "Pallas;" or, assuming the speed of the "Pallas" to be 14 knots, the speed of the turret-ship would be about 13½ knots, that is on the supposition that the forms of the two ships are equally good; that the engines will give out the same power; and that there is no material difference in point of speed between iron and wooden ships.

[The Witness withdrew.
Adjourned.

Admiralty, Tuesday, 16 *May* 1865.

PRESENT:

Vice-Admiral The Earl of LAUDERDALE, in the Chair.

Rear-Admiral Yelverton.
Captain Caldwell.
Captain J. J. Kennedy.
Captain H. B. Phillimore.

Captain R. A. POWELL, C. B., called in; and Examined.

Captain *R.A.Powell,* C. B.

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445. *Chairman.*] I BELIEVE you command Her Majesty's ship "Britannia?"—Yes.

446. Did you superintend the experiments on board the "Trusty;" first in firing from the cupola, and secondly, in firing at the cupola?—Yes.

447. Will you be so good as to state the nature of the experiments you superintended?—The experiments that I superintended on board the "Trusty" were, first, as to the powers of a 42-pounder Armstrong gun in the cupola, against targets placed in different positions, and at different ranges; also firing at gunboats (with blank cartridge), passing the ship rapidly. That practice was compared with a similar gun on the main deck.

448. Will you be so good as to state what, in your opinion, are the advantages of the moveable turret system, and the powers of resistance of the turret as compared with an ordinary armour-plated ship of the present day; and whether you think that system is equally as available for a sea-going vessel as for a floating battery, or a harbour defence ship?—I think the advantage of the turret system over the broadside, is the greater facility with which the gun is worked, and the greater accuracy which you obtain in practice. I believe that there will be great difficulty in working guns over 12 tons weight in any other known way. I also think that you can obtain, from the great training of the gun, a steadier platform than in a broadside ship, as you can

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can place the vessel's bows on to the sea. As to its defensive power, I believe that the shape of the turret is calculated to resist shot more than the broadside of a ship, and a great thickness of metal can be given to the part facing the enemy. I consider that the great advantages are, however, in its offensive powers. The gun can be kept always bearing upon the enemy, and the captain of the turret has a clear sight of the object he has to fire at. In broadside guns it is very difficult when there is smoke to see the object, from the smallness of the ports. From my experience, I think that five shots can be effectually fired at an enemy, to two from a broadside gun. I am now speaking of a single turret. I have had no experience of a turret with a double gun, but of course, that would be trained in the same way as a single gun.

449. When you speak of five shots being fired, as against two of another ship, do you mean in consequence of the smoke clearing away quicker, or from the greater facility of taking aim?—From the greater facility of taking aim, and extent of training.

450. In consequence of the clearness of the view?--There is nothing to obstruct the view; and whilst the men are loading, the turret is always kept bearing upon the object. I consider it a great point that the captain of the turret's undivided attention is directed to that.

451. When you speak of the great facility of pointing the gun, by its being always kept bearing upon the enemy, do you allude to its being kept on, for elevation, as well as direction?—If the ship is rolling, it is of course impossible to keep it on in elevation; but the elevation necessary for distance can always be kept on. I must, however, observe that the turret gun can be trained and elevated whilst in the very act of firing, dispensing with the words "well," or "stop."

452. Captain *Phillimore.*] Could not that be so arranged with a broadside gun?—I have not yet seen a broadside gun with which I could do it; perhaps it could be done.

453. It is not due to the actual turret system?—Perhaps not.

454. *Chairman.*] Do you mean to say that the gun could be fired whilst the men are touching any of the elevating gear, whilst actually at work?—Yes; I believe it could, because the slide could be raised, as fitted rudely in the "Trusty."

455. Have you ever seen guns mounted in a similar way in any other vessel in Her Majesty's service?—No; but I should think it very practicable.

456. Do you think heavy guns of from 12 to 22 tons could be as safely and securely carried and worked on the broadside, or in any other mode, as on the turret system, in a sea-going ship?—I believe that the guns could be safely and securely carried, as they must be on platforms, and would be run in and secured to them; if they had long slides, and they were run in board and secured to these long slides, I think it possible.

457. Captain *Caldwell.*] That is merely as to carrying the weights?—Entirely. I do not think, however, broadside guns of that weight could be worked with either the same facility or safety in a sea-going vessel as in a turret.

458. *Chairman.*] In case of anything jamming the turret or preventing its working, could the gun be pointed in any direction, except the one in which it was jammed, without slewing the vessel?—Not until the obstacle was cleared away.

459. Taking into consideration the chances in action of fragments of wood, shot, iron, and other material getting into the working parts of the machinery, do you think it would be likely to be stopped?—I do not think that there is a very great risk of the turret being jammed; it is, however, very possible, and I consider that the gravest objection to the system; it is vulnerable by shot coming in from the upper deck, I think; I do not believe that striking the turret, unless it was penetrated, would stop its working; a great many shots struck the cupola of the "Trusty," and even penetrated it, the gun was dismounted, but the cupola never stopped working.

460. In case of a turret-ship fitted with a single turret, such as in the plan proposed by Captain Coles for a sea-going ship, if it was necessary, in consequence of the engines being broken down, to work the ship for manœuvring in action under sail, what protection would there be for the crew or the men, who we may suppose would necessarily be required on deck, either from the sea or from the enemy?—The only protection on deck would be getting under the lee of the turret itself.

461. Then they could not well work the ship?—That would be the only protection, which would, of course, be but small; some ropes might be worked down below; there would, however, be great exposure to the enemy's small arms.

462. Do you think that that would be a serious objection to the single turret system for a sea-going ship?—I think it would be one of the objections to making a turret-ship an efficient sea-going vessel.

463. Considering all the advantages and disadvantages of the plan proposed, supposing you had the choice of commanding that ship as a cruising ship, or the "Pallas," a ship supposed to be of a similar size and similar speed, and carrying, we will suppose, four 12-ton guns on the box system, which should you prefer?—I see that Captain Coles plates his turret-ships at 6 inches against the "Pallas" at 4½ inches; am I to understand that that is the thickness of Captain Coles' ship's side, or merely the turret?

464. Such parts of the turret-ship as reach from two feet above the water-line to four feet below the water are covered with 6-inch plates, except for 25 feet from the bows where there is no armour plate at all, the parts abreast of the turret are plated with armour plates of the same thickness, namely, six inches, up to the deck?—I should wish to know if the accommodation in both ships is alike?

465. The necessary difference would be the space taken up in the centre of the vessel by the turret. If you will look at the drawing before you, you will see by the scale the exact space that would be taken up by the turret in the proposed ship?—I see that the accommodation in the turret-ship is inferior to that in a ship not fitted with a turret; the turret-ship is higher out of the water; therefore I should suppose she is just as good a sea-boat.

466. Then, which ship would you prefer?—I think I may answer the question in this way. Viewing the turret-ship solely as a fighting machine at sea, I would in an engagement rather be in her than in the "Pallas," notwithstanding the risk that there is in having both 600-pounders in one turret, and also the disadvantage she would be under from being boarded.

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467. Captain *Kennedy*.] Have you thought of being attacked on both sides?—In such a case you would of course labour under a great disadvantage. The "Pallas," I conceive, has many advantages in keeping her crew efficient and healthy during a long cruise at sea; the great offensive powers of the turret-ship, however, induce me to give the preference to her over the "Pallas" during war.

468. *Chairman*.] That is as a sea-going cruising ship?—Yes, as a sea-going cruising ship.

469. Captain *Kennedy*.] Have you considered the effect of being under the fire of a shore-battery on a height in comparing the broadside principle *versus* the turret, when a single shot fired into the top of the turret might render the ship perfectly *hors de combat*?—When the cupola of the "Trusty" was penetrated the turrets still worked; perhaps the same might be the case under other circumstances. I do not think the turret at all invulnerable; but taking its advantages and disadvantages, I believe it to be the most formidable plan in which guns at present can be mounted, particularly heavy guns.

470. Captain *Phillimore*.] Do you think similar appliances for elevating guns, as mounted in a turret, could be adapted to guns when on the broadside?—There would be greater difficulty in it, as in the turret the platform is a fixture, as far as lateral motion goes.

471. Do you think, in the event of boarding, the turret could be stopped from revolving by wedges, or anything of that kind?—I think if the vessel was boarded, they might, in some way, damage the turret; but it is improbable. I beg to inform the Committee that I consider two guns in separate turrets to have the greatest possible advantage over two guns in one turret, as they are a means of mutual assistance.

472. Admiral *Yelverton*.] Have you considered the difficulty of engaging an enemy to windward with the turret, when the ship is heeling?—I believe that the gun could be given as much depression as an ordinary gun.

473. Judging by the depression of the "Royal Sovereign," should not they give more than four degrees depression?—The turret-ship has the advantage, from the great training of her guns, of putting herself in a position where there would not be much heeling over.

474. Captain *Caldwell*.] Do you see any objection to the turret being fitted to allow the gun being depressed as much as a broadside gun; would there be any difficulty in fitting the port-hole in such a way as to allow the gun having as much depression as in a broadside ship?—There would be no objection if the turret was so high as to keep the gun clear of the deck.

475. In ascending a river where the course of a ship can be very little changed, would the turret then have an advantage over a broadside armed ship?—It certainly would from the greater training of the guns.

476. *Chairman*.] With reference to my former question as to the system of fixing the sights on the top of the turret, and its efficiency for laying the gun for elevation, I see, in looking at your report of the firing in the "Trusty," that you say, "The system of elevation is a little complicated;" will you explain how it is complicated?—When I say "the system of elevation is a little complicated," I mean in reference to the sights, which are not the same as in broadside guns, and must be fitted both for distance and for the height of the object above the water-line. That objection could, however, be overcome by practice and skill.

477. Captain *Caldwell*.] In the "Trusty" were there any complaints of the concussion; were the men loading in the cupola at all affected by the concussion of the gun in its discharge?—A little.

478. Would a one-turret ship, mounting two 300-pounders, plated with 5½-inch iron, have a decided superiority over any other vessel similarly plated and armed on the broadside with six or even eight guns of six tons; I mean three to four on each broadside?—I believe that she would be superior to both.

479. Do you think that 6-ton guns would be liable to damage the armour-plating of the turret; that they would destroy or penetrate a turret such as that of the "Royal Sovereign"?—I think it would require a great many shot to strike it before the turret was penetrated. It would depend a good deal on the number of shots striking the same spot.

480. Admiral *Yelverton*.] Do you consider that, with the same weight of material, say 200 tons, any other mode of armament would afford equal or greater power of attack and defence than the turret in a sea-going ship?—I am not aware of any.

481. With the model and drawing before you, how far do you see the plan affords protection to the vital parts of the ship and machinery?—I consider that she is vulnerable amidships, opposite the funnel. The risk of her being disabled by a shot there, however, is very small.

482. Captain *Kennedy*.] Looking at the model, what do you think of the arrangements for protection of the crew from the weather and the sea, both when cleared for action, and under ordinary circumstances?—I think it very fair when the bulkheads are in their places. When cleared for action, the upper deck is, of course, exposed to wind and sea.

483. Captain *Phillimore*.] From experiments that took place against the cupola in the "Trusty," what is your opinion as regards the resistance offered by sloping or curved plates against vertical ones?—I thought that a sloping plate had a great effect in making the shot glance off; we could see that by the glancing marks which the shot made on the plates.

484. Do you think that an inch plate on a backing of 4½ inches of oak, and inclined at an angle of 10 degrees to the horizon, would deflect a shot from a 12-ton gun when fired horizontally?—I think it would break the deck in, although it might afterwards glance off. I, however, give my opinion with great diffidence.

485. If a shot struck the deck of the "Royal Sovereign" in the vicinity of the turret, when the ship was heeling five degrees, do you think it would injure the machinery connected with the turret?—I think it possible; and I believe that to be the most vulnerable part of the turret.

486. Do you consider that a curved target of 12 feet 6 inches base, with a curvature of 20 inches in the arc, would afford much more resistance to a shot than a straight target of the same length and thickness?—I believe the same weight of metal would be as well disposed in the curve of the arc as it would in the chord of the arc, where, of course, it would have additional thickness.

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487. In this case both the straight target and the curve would be of the same weight, would they not?—Yes.

488. Captain *Caldwell.*] In the turret-ship masted on the tripod principle, it is stated that she can spread 1,500 square yards more canvas; do you consider that that gives any decided advantage?—If both ships have sufficient sail to keep their position and to make a fair passage, I do not consider the additional amount of canvas stated to be a great advantage.

489. Admiral *Yelverton.*] Have you considered the advantage of the tripod system, and do you approve of it as applicable to a sea-going ship?—I consider it an experiment exceedingly likely to succeed; no doubt precautions will be taken to secure the masts, should the tripods be carried away.

490. Should the masts be shot away, do you suppose that the legs would have the power of supporting the weight of the mast?—I think it very unlikely that they would, as the whole weight of of the mast would act as a lever to bring the supports down.

491. Captain *Kennedy.*] Would you consider with the mast secured for action, small gear down, sails furled, and a good preventive back-stay from the masthead to the deck (common precautions to be taken by any sailor), that there would be danger of its coming down, although the centre leg was shot away?—I believe that the mast might be so secured by back-stays as to prevent it coming down; but of course that would be additional gear.

492. Do you not consider that a tripod mast is indispensable for a sea-going ship armed on the turret principle?—I consider it of the greatest advantage, and almost indispensable.

493. *Chairman.*] Are there any advantages in the cupola system in a sea-going ship that you are aware of, that you have not mentioned, or that have not been alluded to by questions from the Committee?—I cannot think of any further information that I can give to the Committee.

[The Witness withdrew.
Adjourned.

Admiralty, *Wednesday*, 17 *May* 1865.

PRESENT:

Vice-Admiral The Earl of LAUDERDALE, in the Chair.

Rear-Admiral Yelverton.
Captain Caldwell.
Captain J. J. Kennedy.
Captain H. B. Phillimore.

J. SCOTT RUSSELL, Esq., called in; and Examined.

J. Scott Russell, Esq.

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494. *Chairman.*] I BELIEVE you have designed and constructed armour-plated steam-ships of various dimensions, and have studied the effect of heavy shot upon the plates, and have constructed a target yourself?—Yes.

495. In designing a sea-going man-of-war, I believe you have specially considered the most material points, as far as they could be ascertained and combined in one vessel, namely, stability, steadiness of platform, the minimum amount of rolling, pitching, comparative easiness in a seaway, and in riding at anchor in an open roadstead, combined with speed and strength, as well as power of offence and defence; in examining the drawings of the proposed ship, you will see that she carries her guns about four feet more above the line of flotation than the "Pallas," or any ordinary broadside ship of a somewhat similar size, and in considering the distribution of the weights, you will see that the turret-ship has about 220 tons in one spot in the centre of the ship?—I have constructed one of the first floating batteries. I designed the "Warrior" class, jointly with the Constructor of the Navy, Mr. Watts. I built a target, experimented upon at Shoeburyness, and I constructed the first Coles' cupola, which was placed in the "Trusty," and I have prepared designs for several iron-plated ships. I will now examine the drawings of Captain Coles' vessel, along with the letter of explanation of the proposal. The first thing that strikes me is surprise at so large a ship having only one turret. Regarding the ship as a gun-carriage, it seems to me a large gun-carriage for two guns, whatever their size may be. I gather from the Committee that the weight of the turret-fittings and guns is about 220 tons; and I say at once, from my own previous calculations, that such a size of ship ought to carry two such turrets quite as easily and comfortably as one. I observe that her displacement is nearly 4,000 tons, and, considering the guns as the only useful part of the ship, it seems to me that four guns ought not to be too large an armament for a ship of 4,000 tons displacement. The first thing I observe is that the 6-inch armour is confined to the middle of the ship, and incloses the magazine, shell-room, boilers, and machinery, which is right; but I do not see the advantage of inclosing the whole after broadside part of the ship in thinner armour, which gives the disadvantage of its weight without the power of resistance to the shot against which the rest of the ship is defended; if six inches is necessary in one place, it would be in another.

Mr. JOSEPH SCULLARD, recalled; and further Examined.

Mr. *J. Scullard.*

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496. *Chairman.*] MR. SCOTT RUSSELL requires you to explain upon the drawing what you propose to place in this unprotected part of the bow?—Not anything.

497. Mr. *Scott Russell.*] In the foremost protected part of the bows between the thwartship bulkhead and mast, what have you that you value for protection?—That large space for warrant officers' stores.

498. Is that all?—That is all.

499. Comprising what, generally speaking?—Spare ropes, gunners' stores, and small arms; the ordinary stores stored in store-rooms in a man-of-war.

500. Will you explain what you protect in the next compartment before we come to the 6-inch plating?—It is proposed to stow seamen's bags, hammocks, &c., and water-tanks below.

501. I observe you carry a fore-and-aft bulkhead through the foremost compartment?—Yes.

502. Do you also carry it through the second compartment?—Yes.

503. I observe that you carry two iron decks also; they are watertight, I presume?—Yes.

504. You carry them through the foremost compartment?—Yes.

505. Under water?—Yes.

506. Have you any objection to do the same through the next compartment?—No.

507. Or through the next?—No.

508. Do you see any practical objection to taking the fore-and-aft bulk-heads also through the third compartment?—None, except the difficulty of getting down the tanks.

509. Do you consider that in armour-plated ships generally, and in this one especially, you have much spare room for stowage?—Oh, yes; I think there is ample room for all stowage.

510. Be good enough to explain what are the parts of the stowage of the ship which you protect by the belt abaft the six-inch armour, beginning at the extreme stern?—The bread-room is the first compartment abaft, in the second compartment the spirit-room, that is, below the platform.

511. Please to confine your answers to the part covered by the belt?—The second compartment is for the paymaster's steward, paymaster's slops, and dispensary; the next compartment is for the captain's store-room, and the midshipmen's store-room; the next compartment is for the ward-room—store-room, marine slops, and engineer's stores.

512. That is, as far forward as No. 85 on the drawing?—Yes.

513. What is in the next compartment?—The engine-room.

514. Then the remainder of the ship forming the centre, comprehends engine-room, boilers, magazine, and shell-room, does it not?—Yes.

515. And the whole of that is enclosed in six-inch armour, except the engine-room compartment, which is 5½ inches?—Except the after part of the engine-room, where the armour is 5½.

516. Be good enough to say how great a space of the centre of the ship is occupied by engines, boilers, and magazines?—105 feet.

517. From the magazine to the stem, how much is it?—About 67 feet.

518. And abaft the engine-room?—About 51 feet.

519. I observe that you have enclosed the boilers entirely in coal boxes?—Yes.

520. Are those coal boxes water-tight, and part of the ship?—Yes.

521. Are they subdivided?—Not the coal bunkers.

522. Do they form effectual water-tight compartments?—Yes; there is a wing passage on each side which may be divided into numerous compartments, with water-tight man-hole doors.

523. Do you see any objection to a complete water-tight compartment between the engine and the boiler-room?—It is intended to fit water-tight doors to these openings.

524. Do you see any objection to a water-tight compartment between the fore set of boilers and the after set of boilers?—I would rather not have that, on account of stopping the ventilation.

525. You do not think you could ventilate them perfectly, independent of each other?—I think not.

526. Then you consider that the coal boxes form a sufficient amount of bulk-head for the boiler-room?—Yes.

527. Do you see any objection to fore-and-aft bulk-heads and iron decks under water, throughout the space abaft the engine-room?—This is the shaft passage; that must be clear for the men to work. I propose that both sides of the screw alley should be water-tight bulkheads.

528. *Chairman.*] Do you mean you do propose it, or that you did propose it?—We do intend it.

529. Is that shown in the plan?—The shaft-passage would come up to the platform, and these bulk-heads would form water-tight compartments below. There would also be water-tight compartments on this deck; I mean according to the plan.

530. Mr. *Scott Russell.*] Have you any objection to the deck over the screw alley being an iron deck, and being connected in a water-tight manner with the screw alley?—It is so; it is usual to have an iron skin on the iron beams.

531. As low down as that?—Yes.

532. Do you see any objection to the scuttles going down to the stores through that deck being water-tight?—They should be water-tight.

533. *Chairman.*] Are they to be so?—Yes.

534. Mr. *Scott Russell.*] Do you see any objection to the divisions which form the store-rooms of the lower platform deck being iron water-tight divisions?—No, I see no objection at all, and I show them as such.

535. Do you see any objection to the fore-and-aft bulk-heads in that compartment being iron partitions?—None, but for the weight; it would be much better, of course, to have them of iron.

536. Do you mean the lower deck to be of iron?—Yes; covered with one-inch iron before and abaft the box.

537. *Chairman.*] It is covered with one-inch, meeting the armour plates?—Yes.

538. Wherever the iron plates are, they would be met with iron plating and with 4½ inches of wood, would they not?—Yes, 4½ inches of oak.

539. Mr. *Scott Russell.*] Is the orlop-deck forwards iron all the way?—Yes.

540. Should you have any objection to have fore-and-aft bulk-heads in the coal bunkers?—Not at all.

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541. Have you any objection to a thwartship bulk-head in the coal bunkers there (*referring to the plan*)?—No.

542. Will you be good enough to make an approximate calculation of what additional weight an additional horizontal iron deck, or vertical iron bulk-head, that has been mentioned to you, would give beyond that which you have already calculated?—I think I have allowed enough displacement for all those partitions that I have mentioned; I should say that 10 tons will cover all that you have suggested.

543. What is your weight of iron hull altogether?—1,850 tons; that is including the 1-inch plate on lower deck.

544. And woodwork also?—That includes everything.

545. Captain *Phillimore.*] What is the thickness of the hull of the ship?—It varies.

546. What is the average?—The average is seven-eighths.

[Mr. *Scullard* withdrew.

Mr. J. SCOTT RUSSELL—*continued.*

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I beg to call the attention of the Committee to the fact, that the weight of the hull of the "Pallas" is only 1,770 tons, while the weight of the hull of this ship is given as 1,850 tons, and I call attention to this fact, that the weight of a wooden hull is enormously greater than the weight of an iron hull of equal strength. Therefore it appears to me that there is a large excess allowed in this estimate for the weight of hull, and I believe that the weight of hull of such a ship as the "Bellerophon" employed on this turret-ship would be very much less than what is given in this estimate.

547. Captain *Phillimore.*] Then he might build a ship as strong as the "Bellerophon" with much less weight of hull?—Yes, with much less than is here allowed.

548. Does it want a thicker hull to secure the 6-inch plate to?—No; the plates of the "Bellerophon" are 6 inches. I also call attention to the fact, that the weight of armour on the "Pallas" is 560 tons, and the weight of armour in this ship, exclusive of the turret, is 529 tons, but allowing for the pilot-house, this vessel would be 559, and the "Pallas" 560 tons for weight of armour. Will the Committee give me their opinion as sailors as to the heights out of the water.

549. *Chairman.*] I think we may say that the higher a gun is out of the water, the better for fighting, provided it does not interfere with the motion of the vessel, or the capability to bear it. You are aware it is a great objection in a man-of-war carrying great weights on her upper deck; but irrespective of that, as far as the fighting qualities go, we think that the gun, comparatively speaking, cannot be mounted too high out of the water?—A broadside port is considered to be high enough if it is nine feet out of the water. I observe it is 10 feet here, from the water-line to the upper deck, and about 2 feet more to the centre of the gun. I also observe that on deck, the turret is 8 feet in from the side of the ship, the slope of the deck being also 5 degrees. I should wish to know, whether for fighting such a ship, so great height of ship's side and gun port is of value, in order that I may set that against the inconvenience of top weight.

550. In a ship armed in that way, with a single turret, we do not think the gun could be profitably carried any lower to fight efficiently in a sea; for instance, looking at the plan of the "Pallas," you will see that when the "Pallas'" lee-ports were under water, the turret-ship could fight her gun with facility, as far as the sea was concerned, provided it was such weather as a gun could be worked in?—I would say, with regard to the lines of the vessel, that I think them very good lines; but I think they are capable of having a little more displacement added on, without any disadvantage of any kind.

551. Captain *Phillimore.*] And which you think would be an improvement?—And which would be an improvement, just below where a second turret would come if there was one, and which I am surprised not to see here.

552. *Chairman.*] Do you think she would carry the second turret, taking into consideration the extra weight of armour plating that would have to be put on above the belt?—I will look into the lines and into the weights, and ascertain whether the second turret might be advantageously carried or not; my impression at present is, that it could.

553. Captain *Caldwell.*] Do you think there would be a certainty of carrying a second turret, if the sacrifice was made of taking one foot from the height of the upper deck above the water; the turrets to carry two 300-pounders in each turret, instead of two 600-pounders?—I will calculate that.

554. Captain *Phillimore.*] If the belt was carried round the bow, and the foremost thwartship bulk-head, plated six inches, done away with, do you think that would much alter her sea-going qualities?—I consider the weight already on these fine bows greater than it is expedient to carry, and I think a cross bulk-head further aft than the present one would give greater safety than the present arrangement. My observation is confined to the effect of a narrow belt.

555. That is, the same belt that she now has?—Yes. By a narrow belt, I mean one that will not keep out such a raking fire as the vessel is likely to receive. I think the lines here show you that it would not protect her from a raking fire.

556. *Chairman.*] When she was pitching, you mean?—Yes.

557. Do you think the "bean-cod" bow, as it is called, affords considerable lifting powers to the forepart of the vessel, which would not have been the case in a vessel with the former raking bows?—For the same reason for which I would lighten the sharp part of the bows, by not coating it with armour. I think it most expedient to have a tumble-home bow, such as it is in the drawing, as it very much diminishes top weight, and I believe makes the ship much drier, which is not, perhaps, what you would expect, but which I find; only it is necessary that the vessel should be fine at the bows, otherwise the bluff upper work would tend to stop her motion in a head sea. I think it, therefore, very desirable with a fine bow, but not with a full one.

558. Captain *Kennedy.*] You have seen the practice against targets, have you not?—Yes.

559. Would it not be very difficult to pierce diagonally (which would be the direction of a raking shot on the bow) a plate of 4½ inches thick, well backed?—It would with round shot,

very difficult; it is not so, to the same degree, with rifled shot. The result of all the practice I have seen at Shoeburyness has been to remove from my mind a strong belief which I entertained of the greater power of armour set obliquely than set square to resist shot. Both the flat-headed, elongated rifled shot, and the pointed rifled shot, appear to retain their powers of penetration undiminished up to an angle of 45 degrees.

560. Captain *Caldwell.*] Do you perceive any difficulty in a rifle shot penetrating the deck, if striking it at an angle of 10 degrees from the horizontal line, the deck being of one-inch iron, covered with 4½ inches of oak?—I have seen no experiments made directed to that point. My opinion as a mechanical man is, that the very small angles of the deck favour ricochet, and I am not aware of any plate having ever been penetrated at low angles under 20 degrees. The deck would probably be scored, ploughed up, or indented. The shot would probably not penetrate at those angles, but that is my opinion merely.

561. Would the damage done by throwing off splinters be sufficient to injure the turning machinery of the turret, which is immediately beneath?—I am not much afraid of damage to the turret so long as it is kept, as Captain Coles does it, pretty clear of the deck; and as the iron is on the under side of the deck, I do not apprehend much danger from splinters; but I do think that in the vicinity of a turret it is expedient that iron plates should be laid down above the wooden deck as well as below. Wherever there is great danger of a shot grazing or penetrating, the top of the wooden deck should be laid with iron plates in addition to the iron deck below the wooden one.

562. *Chairman.*] With regard to the rolling and pitching qualities, and the steadiness of platform in a sea-way, do you see any reason to suppose that this ship would be wanting in those qualities as compared with a vessel of similar size, with guns mounted in the ordinary way, bearing in mind that she has no keel, which is the case in most iron ships, but that she is to have bilge pieces?—I think the form of the ends of this ship will make her pitch easy if not overloaded at the ends, but both ends being fine, it is desirable to secure them against pitching by taking care that they carry no unncessary weight. With regard to rolling I cannot give a definite answer until I have obtained, from the constructor and the plans, the centres of gravity of the different weights, but I will examine these calculations with the constructor carefully, and endeavour to give an exact answer upon that point. Looking at the general form of the ship, I think it well calculated for easy motion of rolling, provided the weights are rightly placed.

563. Do you allude not only to the easiness at sea, but the easiness in riding at anchor?—I think the lines will allow her to pitch easily in a sea-way, and also to ride easily at anchor.

564. Now as to her speed: you will see that her maximum speed is given as 13·8, and her engines are to be of 600 nominal horse-power?—I see no fault in the lines as to speed; but when I have seen the lines of the "Pallas," and her power, I shall be able to arrive at a conclusion as to which will go faster. I would say that the speed named does not seem unreasonable to expect.

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565. Captain *Kennedy.*] Does not that always depend on length?—Not always. I see nothing in the lines of the vessel to make her more or less difficult to turn than an ordinary vessel of equal length and draught.

566. Captain *Caldwell.*] Do you consider that the vital parts of a ship and machinery are sufficiently protected by the armour plating?—I do not think the vital parts sufficiently protected. I think that, owing to the absence of a cross bulk-head, under the lower or berth deck, in front of the magazines, and abaft the engine, an oblique shot could enter the centre compartment from a great number of angles of fire in a sea-way, and I do not think the narrow strip compensates for the absence of such a bulk-head.

567. That objection would be overcome, I presume, by carrying the foremost bulk-head lower down, as well as higher up, or placing it further aft, as a shot fired from an enemy's ship could only strike at a very low angle on the bows, at 10 or 12 degrees at the outside, and there being a protection of an inch iron deck covered with 4½ inches of wood?—I agree with the value of the iron deck entirely; I only fear that the small size of the bulk-head, which is put so far forward, leaves very considerable angles on a weather-bow, in a sea-way, unprotected.

568. Admiral *Yelverton.*] Can you give the Committee any opinion as to the tripod mast which is proposed to be adopted, and its power of supporting and resisting?—I am of opinion that the tripod mast can be built of iron, to be perfectly strong, and to stand the working of an iron ship. The iron masts of the "Great Eastern" are absolutely part of her hull, built quite rigidly into her. Care would have to be taken that the mast and the two sheer-legs should all spring from the iron structure of the ship at a place where they are not likely to yield or give.

569. During your experience, have you ever seen that principle adopted?—No; I have merely considered whether two tripods built of iron could or could not give as effectual support to the mast as iron-wire rigging, and I think they could. I should certainly be prepared to give it a fair trial. As far as I can see, it is a good and sound way of supporting the mast. I think that it would be a source of great safety to the ship under fire.

570. Captain *Phillimore.*] If the mast was wounded, do you think the legs would support it?—It would help it, undoubtedly.

571. If a shell burst in the middle of the mast do you think the legs would be strong enough to support the mast?—I do not think they would, but I think it a clever thing. Certainly there are better chances for the mast with its legs surviving an action than if those legs were two wire ropes in the same places.

572. Looking at the model, if the guns were trained so that a shot would pass close to the legs of the tripod, do you think the concussion would have any effect upon the legs of the tripod?—Not the least.

573. *Chairman.*] Are the Committee to understand from the answers that you have already given that you consider, with the same weight of material, another mode of armament would afford equal or greater powers of attack and defence?—I think that with the same weight of material given in this ship two effective turrets might be well carried.

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574. Do you mean by that, that out of the same material you could get iron enough to make two turrets?—Yes.

575. Which in your opinion would afford greater offensive powers?—Which in my opinion would increase her offensive powers.

576. In so doing, would you decrease her defensive powers; by that I mean her power of resisting shot?—My impression is that an equally well-defended ship of this size might carry two equally efficient turrets; but I will make the exact calculation.

577. Admiral *Yelverton.*] Turrets mounting, I presume, 12-ton guns?—Yes, mounting four 300-pounders.

578. Captain *Phillimore.*] Do you think the masts are properly arranged?—I have no objection to the placing of the masts.

579. What do you consider the advantages and disadvantages of the turret-ship as a sea-going cruising-ship?—I think that for four large guns the turret system offers advantages above every other system with which I am acquainted, even in a sea-way. The pivoting of the gun and gun-carriage in the centre of the ship on a turn-table makes the manœuvring of the gun certain and easy. It would be difficult to put four guns safely at a given height out of the water with less weight of armour than is required by the turret system.

580. Four guns on each broadside?—Four guns on one broadside. I have no doubt that broadside guns will in the end be worked by machinery; but I take the case of a ship which has to follow one course in one direction through a great range; for example, you have to pass up a winding channel or river, past a fort: by the turret, you can keep up a steady fire and perfect aim, utterly disregarding the direction of the ship, and it would be difficult in a given time to turn broadside guns as rapidly, or with as much certainty.

581. *Chairman.*] Even if worked by machinery?—Even if worked by machinery, because there are always left intervals of a considerable number of degrees which the guns cannot cover by any other system. In short, I consider it a great advantage in this system that the port moves with the gun all round the circle, and that there are never any angles uncovered with fire. On the other hand, when the number of guns is greater than four, I think the additional number of guns could be had at much less cost and weight by the broadside system, and there are so many purposes for which a great number of guns in broadside is most desirable, that on the whole I do not think a greater number than two turrets in any ship is to be recommended.

[The witness withdrew.

Admiralty, Thursday, 18 *May* 1865.

PRESENT:

Vice-Admiral The Earl of LAUDERDALE in the Chair.

Rear-Admiral Yelverton.
Captain Caldwell.
Captain J. J. Kennedy.
Captain H. B. Phillimore.

Captain G. W. PREEDY, C. B., called in; and Examined.

Captain *G. W. Preedy*, C. B.

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582. *Chairman.*] I BELIEVE you command Her Majesty's ship "Hector" in the Channel squadron?—Yes.

583. I think she is armour-plated all round the gun-deck, is she not?—Yes.

584. But the bows and stern are unprotected below that deck?—Yes.

585. You have also, I believe, commanded the "Liffey" and "Agamemnon?"—Yes.

586. From what you have seen of the "Hector" and of the other ships in company, do you think they are as efficient sea-going vessels; as lively, and as, what sailors call, wholesome sea-boats when forced against a head sea, as the old ships you have commanded?—Certainly not, with the exception of the "Achilles." I think in moderate weather and little sea, these ships, under steam, would answer well; but in a gale of wind, or in bad weather, I think they are most difficult to manage, and of the "Valiant" class even dangerous in a heavy sea.

587. I more particularly allude to their ease and safety in case of being obliged to be forced against a moderate amount of sea, such as either in chasing or being chased?—In that case I should not doubt they would be superior to the wooden ships; they would steam against any wind and a moderate sea.

588. Captain *Kennedy.*] Without straining?—They would not strain; I do not think there would be any danger of their straining.

589. *Chairman.*] You mean they would be comparatively easy?—I think they would leave any wooden ship behind, and, with their enormous weight and fine bows, they would steam against almost anything in moderate gales.

590. I allude more particularly to their ease in being forced against a head sea?—I think they would be easy.

591. Admiral *Yelverton.*] They would not have a tendency to bury themselves?—I think not. I must tell you my experience in the "Hector." We have no guns at the extremities at all; it would make a vast difference if ships were fully armed and had guns at the extremities, they would labour more than the old ships.

592. What is the heaviest gun you have in the "Hector," or that you have seen worked?—The Somerset 6¼-ton gun.

593. I believe you were trained as a gunnery officer?—Yes.

594. Do you think from what you have seen of the working of the Somerset gun, that it could be worked efficiently and safely, and carried without straining the ship, on the broadside, taking all things into consideration, the difficulty of

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of handling the shot when knocking about, and other things?—I have no doubt that the "Hector" is quite strong enough to carry that weight of gun, but I think it would be worked with great difficulty in a sea-way; the other day we had great difficulty in running the gun in with 22 men on the train whips and tackles attached to the carriage, the ship only heeling over six degrees; but the fact of firing the gun, I have no doubt, would have brought it in. Why I alluded to running in was this, the ports of these iron ships are low; and if you get a gun out and cannot get it in again, it would be a very serious matter in a sea-way, for you would ship such heavy seas that it would become a very serious matter. We could fire a gun at six degrees of elevation over the lower half port without unbarring it, as long as the gun did not touch the port. I should say that whole ports were preferable to half ports, because you could then fire a gun as in lower deck exercise, and then could drop the port and prevent the sea coming in.

595. If you look at the model before you, of the proposed turret-ship, you will see that the guns are mounted in a central turret; would the difficulty and danger of working the gun in a sea-way on the broadside affect these guns at all in the same proportion?—I do not know whether the carriages are fitted on the same principle as the slide carriages in the "Hector."

596. My question has reference to the position of the gun, it being in the centre of the ship instead of being on the broadside?—In my opinion, the guns mounted upon that principle, are mounted in the safest and best way for controlling heavy guns. I do not think that the heavy broadside guns can be worked with facility; even a gun of six tons is too heavy as a broadside gun, unless there are some mechanical means of controlling it.

597. You have alluded to there being a difficulty and a nicety required in the management of 6¼-ton guns; supposing the gun was increased to 12 instead of 6¼ tons; what would be your opinion as to fighting and managing a gun of that weight?—In bad weather I think a man would be out of his senses to cast the gun adrift, as a broadside gun, with a ship rolling 29 degrees, as we were rolling the other day.

598. I mean in bad weather, when ordinary guns could be fought?—Taking the chance of a ship rolling from 16 to 20 degrees, it would be unwise to cast such a heavy weight adrift.

599. Do you think that it would not only be unwise but dangerous?—It would be dangerous, undoubtedly, because we look upon all those ports in an iron ship as so many dangers; if anything happens to them it is a very serious matter; it is not like the top of a sea coming in at the port as in a buoyant ship, but it is tons and tons of water coming in.

600. Then you think that it would be positively dangerous to cast loose a 12-ton gun when the ship was knocking about and rolling from 16 to 20 degrees, and where guns over 6¼ tons in weight could with proper precaution be worked?—With great care the 6¼-ton gun could be worked in such weather at the time, but a 12-ton gun certainly could not.

601. If such be your opinion with regard to the 12-ton gun, supposing the weight of the gun to be increased to 22 tons instead of 12 as a broadside gun, what would you say then?—I do not think that such a gun could be used as a broadside gun at all.

602. Used or carried?—I think these ships may be built to carry the weight.

603. I mean carried in a gale of wind without straining?—The weight already on the ship's side is about 800 tons, and the ship does not complain in the least, as far as I can see.

604. Then that is divided over her whole length?—Yes, it is; I do not think a gun of 22 tons could be used as a broadside gun.

605. Have you seen the turret in the "Royal Sovereign"?—Yes, I have seen it.

606. If it was possible to carry and work such a gun, namely, of 22 tons, in a sea-way, do you think it possible to carry it with safety and security, and to work it if it was carried in any other way than on the broadside?—I think it may be carried in a turret, and that it may be controlled in a turret.

607. Then are the Committee to understand that you think the turret is the only way in which such a gun can be carried, and efficiently worked in a sea-going ship?—The only way that I have yet heard of.

608. Or that you are aware of?—Or that I am aware of; I am now speaking of the 22-ton gun.

609. I think you have said that even the 12-ton gun could not be usefully and efficiently worked on the broadside in an ordinary sea-way?—Yes, I have said that.

610. Then I conclude that you are of opinion that it could be worked efficiently in a turret?—Yes, any weight could be controlled in a turret, and lighter weights than the 22-ton gun could be worked with perfect ease.

611. Do you think that the 12-ton gun could be as efficiently worked in any other way?—I do not think even the 6-ton gun could be worked with safety as a pivot gun. It would be equally dangerous to work it as a pivot gun, as a broadside gun, I mean in the usual way in which guns are fitted on a pivot in the centre.

612. You do not think that a 6½-ton gun could be safely and efficiently worked on a pivot slide?—No, that is my opinion, that is in the centre used as a pivot gun, if it is to be worked from one side to the other, either the quarter beam or the broadside.

613. Captain *Kennedy*.] Can you imagine any possible way of fighting a 12-ton gun except in the turret?—No.

614. *Chairman.*] Taking it for granted that there is an immense advantage in heavy shot over the same weight divided into three or four shot, do you not consider that the loss of time in handling and firing those heavy shot in a considerable measure deducts from its value?—It depends very much upon what you are opposed to; if you are opposed to a wooden ship, I should say give me the 68-pounder.

615. You fire a given number of shot in a given time; if the shot hits me it does for me, but in the meantime against you I can fire, we will say, four 100-lb. shot, or six, or whatever it may be, owing to the facility of loading: taking those points into consideration, do not you think it becomes very material?—Taking into consideration everything you may be opposed to, I should say that the 100-pounder would be the most serviceable. If you are opposed to an iron-plated ship, I think the 600-pounder would be preferable, but if opposed to a wooden ship you are able to fire away your 100-pounders, which would be a far better armament than one 600-pounder.

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616. If a 12-ton gun will penetrate any armour plates now used on armour-plated ships, do you think it would be advisable, even supposing that a heavier gun could be carried, to arm ships with guns weighing 22 tons, supposing the 12-ton gun will do the work?—Not unless the ships they are placed on board of can carry four of such guns; if there is only to be one 600-pounder in a ship, and I could carry even two 300-pounders, I should prefer the two 300-pounders to one 600-pounder.

617. If you will look at the drawing and model you will see that the proposed sea-going ship of Captain Coles is fitted with only one turret to contain two 22-ton guns?—Yes, and both pointing in the same direction.

618. I am now more particularly alluding to the advisability of arming a vessel of that size in the way proposed, namely, with only one turret and two guns, which can only point in one direction at a time, and you will bear in mind that in all these questions I am alluding to a full rigged sea-going ship?—Unless a ship can carry two turrets, with two guns in each, I do not think it would be advisable to trust to one only; if anything happened to the guns or the turret, the ship would be *hors de combat*; if it were possible to build a vessel of 600 tons, a mere gun-boat, working one heavy gun, I think such a class of vessel would be very useful.

619. Captain *Phillimore.*] Do you mean of the "Wanderer" class?—No, even smaller than that; but to build vessels of such an enormous tonnage only to carry two guns in one turret I think would be a step in the wrong direction.

620. *Chairman.*] Have you considered also the disadvantage she would labour under, if attacked by two enemies at once?—Yes, she would have no means of engaging two vessels.

621. Captain *Caldwell.*] Except alternately, perhaps?—Yes; I do not know what speed this vessel is supposed to have; because it is a very serious matter if anything happened to the turret or the guns, the vessel might be boarded by vessels of superior speed.

622. *Chairman.*] In looking at the model and the drawing, you will see that the deck of the vessel is 10 feet from the water-line, and when she is not cleared for action there is a slight iron-plated bulwark of about five feet in height round the deck, to protect the crew and keep out the wash of the sea; what is your opinion of her sea-going qualities, as to the protection of the men, and her liveliness in a sea-way, when under sail or under steam, going against a good head sea, as compared with other vessels of a similar size?—Comparing her with the "Liffey," which I have commanded, and which is 2,600 tons, there would be no doubt that the "Liffey" would be vastly superior as a sea-going ship. With regard to comfort, I think a vessel with her deck only 10 feet above the water would be very wet indeed.

623. Captain *Caldwell.*] To the top of the bulwarks, you will find it is 15 feet?—Yes; but you must have some outlet in these bulk-heads in case of shipping a sea.

624. *Chairman.*] Above the deck you will observe that there is a five-foot turn-down side; do you think that that side would stand the force of the sea when she was forced against it?—No; I think the sea striking it would knock it down. I have very little doubt of it. A sea on the bow stirking this bulk-head would bend it in.

625. Captain *Phillimore.*] Would that render it useless?—It would render it unserviceable.

626. *Chairman.*] If you are of opinion that even with a deck 10 feet out of the water she would be a very wet and uncomfortable vessel if forced against a head sea, of course you would think that the gun in the turret could not be carried lower?—I should say not for a sea-going ship.

627. If the ship was cleared for action, and the plates down as you see them, partly, on the model, and the ship was obliged to be forced at considerable speed against a head sea, do you think that the men could with safety remain on deck at all, supposing it was necessary for them to be there for the manœuvring of the ship?—Not in heavy weather, where green seas would come in; that would be an extreme case. In the case of a considerable sea of the kind referred to, I do not think the men could with safety remain there, unless they had some means of a temporary bow or breakwater to prevent the sea coming in, to project about 20 feet on either bow.

628. When you mention the difficulty and danger of working heavy broadside guns, of from 6½ tons and upwards, do you think that by means of any mechanical appliances that you have seen they could be safely and efficiently worked, or more efficiently worked?—I have no doubt that heavy guns may be worked by mechanical contrivances, but still it must be borne in mind that such machinery would be very much exposed, being immediately opposite the port; and if that was disarranged by shot, the gun would be at once disabled, and you would have no means of working it afterwards; but if a tackle goes, or anything which a sailor thoroughly understands, it is replaced immediately, and there is no difficulty about it.

629. Have you seen, or do you know the plan of Captain Scott's gun-carriage, which is being tried in the "Research?"—No, I do not.

630. Admiral *Yelverton.*] To what extent do you think the turret might be liable to injury so as to impede the turning, and working of the gun?—I think as the "Royal Sovereign" is fitted there is a part of the deck unprotected, and that a shot finding its way through the deck, may so injure the machinery that it would render it unserviceable; but in all turret-ships that ought to be seen to and well protected. There ought to be no unprotected part.

631. Then you think that a weak part, that ought to be looked to?—Yes, in all turret-ships the machinery is a vital part, and if a shot disarranges it, the turret is of no further use, or would not be for a considerable time.

632. By the drawing of the turret of the "Royal Sovereign" you will see, and from your own personal observation, you are aware that it is only the guns themselves, and the few men that are required to sponge, load, and elevate them that are actually protected by the armour plates in the turrets; are the men below that, and the parts of the machinery better protected than they would be in a broadside ship plated with iron of the same thickness?—The protection would be the same, I mean the same as in ordinary iron-plated ships; the thickness of iron is the same, and therefore the protection would be the same.

633. Admiral *Yelverton.*] If you had to select a ship to go into action with, yourself, would you prefer

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prefer a ship with one turret, mounting two 22-ton guns, or would you prefer a ship with two turrets, mounting four 12-ton guns?—Undoubtedly the one with the two turrets and the four 12-ton guns.

634. *Chairman.*] Taking the general advantage of the heavy shot as over the lighter ones, and also considering the power of the 12-ton gun, do you think the latter mode of armament would be far preferable?—Taking all things into consideration, I certainly do.

635. Admiral *Yelverton.*] Have you seen, and do you understand the box principle?—Yes.

636. To engage an enemy in moderate weather which would you prefer, a ship fitted with the box or with the two turrets such as I have described, with two 12-ton guns in each, supposing the box contained four 12-ton guns, and that you had the power of working them?—I should prefer the two turrets decidedly.

637. I will put you into a ship with only one turret, and two 22-ton guns, against the same box, I double your weight of metal, and reduce your number of guns?—In the one turret I think you would trust too much to one thing. If anything happened to the turret the ship would be disabled; but if I could insure the turret and the two guns working perfectly, and not giving way, I should prefer the turret with the two guns to the box with four; but I think it is running such a great risk, that trusting to one thing in a ship is not desirable.

638. *Chairman.*] What Admiral Yelverton asked you was, which you would choose?—Of the two I hardly know which I should choose, they are both so bad; I think, to introduce 12-ton guns into the box principle, or one turret with two 600-pounders, would be an armament that I should be very sorry to see introduced.

639. But of the two evils which would you choose?—If I was obliged to take my choice of such a command I should choose the turret with the two 22-ton guns.

640. Admiral *Yelverton.*] Do you think in firing fore and aft, or almost fore and aft, from a turret-ship, the deck would suffer from the concussion?—I was strongly of that opinion until I saw the "Royal Sovereign," but I am now satisfied that the deck would be uninjured. I was of a contrary opinion most completely, for I thought the deck would be blown up.

641. How far do you think the armour plating in the vessel, as shown in the drawing before you, affords protection to the vital parts of the ship and the machinery?—From the base of the turret to the upper part of the armour plating it is not sufficiently protected, and I am of opinion that the deck on each side of the turret ought to be protected with iron of sufficient thickness to turn a shot. I think that the glacis plates ought to project to the ship's side to meet the armour plating.

642. Will you look at the drawing showing the boilers, up-take, and funnel, and tell the Committee what you think with reference to their safety from shot from an enemy's vessel?—If an armour-plated bulk-head abaft would not add too much to the weight of the ship, I think it would be desirable, but I see no great difference in the position of her boilers to that of any other ship.

643. Captain *Caldwell.*] What is the ordinary amount of your rolling motion in the "Hector," in a moderate sea?—We roll from 10 to 14 times in a minute.

644. About how many degrees in the extreme?—The extreme roll was about 29 degrees, but frequently up to 16 and 20.

645. Was that in moderate weather?—Yes; at the same time she rolled remarkably easy.

646. When you are rolling in that manner do you roll your lower port sills under water?—Yes, completely under.

647. What is the height of the lower port sills from the water's edge?—About 7 feet 4 inches, I think.

648. Were you able to exercise or practice your $6\frac{1}{4}$-ton guns when rolling in this manner?—When rolling at 14 degrees, certainly not. I would not allow them to be cast loose, but rolling, say from about 10 degrees at the outside, we ran the gun out and could work it, with great care.

649. Do you get any target practice at any time?—No; I fired shot coming home, but not at a target.

650. Do you think you could have made any tolerably accurate practice when the ship was rolling from 12 to 16 degrees?—No, not accurate practice.

651. *Chairman.*] Not at any distance?—No, not with any precision, the ship rolls so very frequently.

652. Captain *Caldwell.*] With a roll of from 12 to 14 degrees, would that bring your port in the water?—It depends; if there is any sea and wind it would, but in a calm or swell probably not.

653. Do you think it would be safe or practicable, even when rolling from 14 up to 18 degrees, to shift the pivot gun from the beam to the bows?—We have no pivot.

654. Do you think it would be safe to transport a $6\frac{1}{4}$-ton gun from one port to the other when rolling from 12 to 16 degrees?—I do not think it would be prudent.

655. Supposing you had had a pivot gun on your upper deck, do you think, when you were rolling in that manner, you could have transported it from the quarter to the bow and worked it safely?—No; I think there would be more difficulty in working the pivot gun than the broadside gun, and more danger.

656. Then, supposing in the box system, in which to fire a gun on the bow, it is necessary to transport the gun from the broadside to the bow port, or the fore quarter port, do you think that could be done safely when the ship was rolling to that extent?—No, I do not think it could be done with safety.

657. Then, if it could scarcely be done with safety with a $6\frac{1}{4}$-ton gun, I presume that with a 12-ton gun it would be more difficult and more dangerous?—Certainly.

658. Seeing the size of the 12-ton guns, do you think good practice could be made, taking aim through the port (which is very narrow and very contracted) at a moving object, the ship itself being in motion?—I think there would be great difficulty in making good practice.

659. Do you consider that the iron-clad vessels roll considerably more than ordinary ships, not iron-clad?—They roll much quicker, with the exception of the "Achilles;" she appeared remarkably steady, when the other ships, even the "Edgar," were rolling very much.

660. *Chairman.*] Do they roll deeper?—I think a line-of-battle ship in a gale of wind would probably roll as deep.

661. Take a vessel of a similar height, carrying

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a gun of a similar height out of water?—The iron-clad would roll more, certainly, both deeper and quicker.

662. I believe that 50-gun frigates roll more than the old sailing frigates: how did the "Liffey" roll, compared with the old ones?—But little; she is one of the easiest ships I have ever served in. You would not term her a rolling ship at all; she is remarkably steady.

663. Will you state to the Committee about what her average roll is in a swell?—I do not think she ever rolled over 13 degrees, or something like that. We were in bad weather in the Gulf Stream, and she did not roll very much there.

664. Captain *Kennedy.*] What armament had you?—We had a full armament.

665. Captain *Caldwell.*] Supposing the "Liffey" had been armed with 6½-ton guns, do you think you could have worked them with greater facility than you could have worked the same guns in the "Hector"?—Undoubtedly, I could have worked them with greater facility than on board the "Hector"; but I do not admit that they could be worked easily in any ship, as a broadside gun; they may, but I would not go an ounce beyond a 6-ton gun, as a broadside gun.

666. Looking at the model of the tripod mast, and the drawing of the sails, do you see anything impracticable in carrying out that plan in a sea-going ship?—Always providing that the legs are uninjured, I see no objection; I am only thinking of one of those legs being shot away.

667. In the first place, do you see anything impracticable in the method of working the ropes and sails, and so on?—No, I see nothing to prevent its being carried out at sea; but I doubt very much indeed, in anything like a sea, or carrying sail, if the lee-leg was to go, whether the mast would not fall aft on the quarter.

668. Captain *Kennedy.*] Do you think it would be an advantage if iron-clad ships had more sail?—Undoubtedly, they have not sail enough.

669. Have you ever remarked, in the sailing of the fleet, whether the unprotected portions of the ship were often exposed, so that they could be hit by shot, when pitching or rolling?—No; not in any ordinary weather. I think the plating is five feet six inches, or nearly six feet below the water; I do not think they are generally exposed.

670. Do you think that the screw or the rudder is generally protected enough in the armour-clad ships in the present fleet?—Certainly not; I think they are badly protected.

671. Could you possibly, in the "Hector," have got rid of your armament in a heavy gale?—Only the upper-deck guns.

672. *Chairman.*] Assuming that the principal advantages in the turret system are: first, that guns of 12 tons weight and upwards could not be as efficiently and securely carried in any other way in a sea-going ship in a sea-way; secondly, the unlimited amount of training, as far as the gun is concerned, and the being able to train the gun whilst sponging, loading, and running out is going on, so as to nearly ensure the gun being pointed in the direction of the object when it is ready to fire; and, thirdly, that the gun in the turret is in some measure better protected than in any other way; are there any other advantages that you can particularly point out with regard to the turret system?—I think those are the principal advantages, and that you may control and work a gun of almost any weight upon that principle, when I do not think it possible to do so upon any other plan that has been yet proposed.

673. Are there any other advantages that strike you?—I think the great advantage is the being able to control a gun of almost any weight; it does not strike me at present that there are any other advantages.

674. Do you think that the armour plating round the bows is a greater protection to the ship than having an armour bulk-head right across, supposing the unprotected part has water-tight compartments, like the "Warrior," and considering the extra weight that is put upon the bows by plating her right round?—I think I should carry it out much the same as in the "Achilles," to have the belt round the bows. It is a great objection to have an unprotected part of the bows; if that part is filled with water by a shot striking it, the vessel would be so much down by the head that she would be a difficult vessel to manage; she would of course settle down by the head, and would be very difficult to steer at sea, in any way. I think the belt system is the best.

675. Have you ever observed in belted ships at sea, when they were pitching and rolling much, that the part that is under the belt was often exposed?—No, not under ordinary circumstances. The armour plating in the "Hector," and I believe in the other ships, extends about 5 feet 6 below the water-line, therefore a ship must roll considerably to expose it.

676. Captain *Caldwell.*] As in your opinion, 12-ton guns could not be carried and fought on the broadside with efficiency, would not a ship armed with 6½-ton guns, as her heaviest gun, be exposed to a great disadvantage if engaging an iron-clad vessel which can carry 12-ton guns in a turret, the 6½-ton guns not being able to penetrate 6-inch armour; that being assumed, as I believe is the case, whilst the 300-pounders could penetrate 6-inch armour and anything under it with ease?—It would be exposed of course to great disadvantages.

677. Even if the ship had but a single turret with two 12-ton guns?—Yes, against that particular ship no doubt.

678. *Chairman.*] Is there any other point upon which the Committee have not asked you, but upon which you have any explanation to afford with reference to the proposed plan?—I should like to put it on record that in the case of the "Achilles," from her formation, she has proved very successful as a sea-going ship, in my opinion; and in building future ships I think a great deal may be learnt from the particular construction of that ship. When the other ships of the fleet were rolling from 14 to 20 degrees or more, up to 29 degrees, she appeared comparatively steady, rolling only a few degrees.

679. Captain *Phillimore.*] Were any sails set at the time?—Yes, she was under sail; she was the only ship out of the whole squadron that rolled so little, including the "Edgar." It was so remarkable that I think it worth attending to, because I have never yet seen a ship that did not roll very much more than the "Achilles."

680. Either plated or not plated?—With the exception of the American frigate "Niagara;" she did not roll.

[The Witness withdrew.

Captain Astley Cooper Key, c. b., called in; and further Examined.

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681. *Chairman.*] When your examination was closed the other day, I think the question that was about to be put to you was, "Do you think with the same weight of material, any other mode of armament than placing two 22-ton guns in one turret would afford equal or greater powers of attack and defence;" I think that was the question you wished to consider before you answered; is there any explanation that you would like to have relative to that question?—I have already been furnished by the Secretary with the weight of the armour-plating, the tonnage, and the displacement of the proposed sea-going turret-ship, which, to a certain extent, would enable me to frame an answer to your present question; but I must say that I am not prepared to answer that question clearly, as it would involve my proposing a design for a similar ship, which, without the assistance of a naval architect, or the occupation of a very long period of time, I should not be able to prepare properly. Any alteration in the disposition of the weights or in the armament, involves such a careful consideration of the position of centre of gravity as well as the displacement of the ship, that I would, as I have said, require the assistance of a naval architect to help me to produce a plan. I am, however, prepared to give an opinion upon any two plans that have been designed for the armament of similar ships; and as I perceive you have the dimensions of the "Pallas," which is supposed to be a similar ship, I can, to a certain extent, give an opinion with respect to these two. In going into the dimensions of the two ships, I observe that the sea-going turret-ship has a displacement of about 370 tons more than the "Pallas," but from the description that is given of her, I presume that it is intended that she should have the same speed.

682. Nearly so, but not quite; the difference of measurement is a good deal owing to the one being a wooden ship and the other an iron one?—If it be considered that the proposed sea-going turret-ship has sufficient speed, and is altogether a satisfactory ship as regards her form, it appears that there is about 370 tons weight that could be added to the "Pallas's" present armour-plating, yet preserving the same speed as the proposed ship. This extra amount of weight would allow for the "Pallas's" armour-plating to be increased to 6 inches, instead of 4½ inches, and two additional 12-ton guns. Referring to the plan of the turret that I saw at my last examination, I would say that the turret to work the two 600-pounders would require to be considerably heavier than is here allowed for.

683. The weight given you before has now been corrected, and we find that the turret and the fittings are to weigh 176 tons instead of 146 tons?—That makes a difference, but in the dimensions of the turret-ship that I have before me, I am not informed what weight is allowed for the two 600-pounders and their projectiles.

684. The two guns and carriages are put at 50 tons?—The whole weight of armour-plating, including turret, pilot-house, and plating round the ship and on the deck, is 885 tons. The total weight of armour-plating and fastenings in the "Pallas" is 560 tons, so that even in the disposition of the armour-plating there is still upwards of 300 tons that you could add to the "Pallas's" present armament without bringing her displacement above that of the proposed ship. This is an important element in comparing the two ships, and I can say little more without bringing forward a design of my own.

685. We do not wish you to design another vessel, but merely to give your opinion upon this?—In an answer to a question on my former examination, I stated that I was of opinion that a greater number of guns could be mounted upon a broadside for an equal weight of armour-plating, than is now mounted in the turret, as proposed with the two 600-pounders; I imagine that it is not generally understood that the weight of armament a ship can carry depends much more upon the weight of the projectiles and ammunition than it does upon the guns themselves; if a gun is mounted as a revolving gun in a turret, it requires double the weight of projectiles and ammunition to that which it would if it were on the broadside; one gun, in fact, has to do the work of two. As regards the abstract question of the armament of a ship, I am of opinion that it is no use having armour-plating unless it is proof against the penetration of shot from the guns which the ship herself will carry, or from the guns that will probably be brought against her. I do not think that 4½-inch armour-plating is sufficient for a ship armed with heavy guns, such as the one now proposed. There is no doubt that the most vital part of a ship is the water-line, and I would advocate the construction of a very thick belt at the water-line which would prevent the ship being sunk, would protect the rudder and steering gear, and the engines and boilers effectually, combined with a deck of inch plating extending across the ship on a level with the upper part of the belt. I have already applied to the Admiralty for experiments to be tried as to the efficiency of an iron deck of inch plating for keeping out or deflecting steel shot from heavy guns in smooth water, and I think that would be a very useful experiment to try, because, if that will do so, a ship with a thick belt, and this deck over it, would be unsinkable.

686. Do you refer to a shot fired at a low elevation?—Yes, at the distance that you would ordinarily fire a steel shot. I think it would be unsinkable at that distance; having provided for what seems to me to be the vital part of the ship, I would arm her with as many heavy guns on the gun deck as she could possibly work and carry.

687. On the broadside you mean?—On the broadside, provided always that there are either guns carried forward and aft which will be able to fire in a line with the keel or nearly so, or that ready means are provided for bringing the guns into the ports which will enable them to fire in that direction. I do not consider that proper provision is made for the bow and stern armaments, unless the guns can be put in those ports without transporting them, or shifting the pivot more than once.

688. Do you think it would be advisable to arm a ship, whatever her midship mode of armament may be, by putting a turret at each end of her, that is to say, nearer the end than one-fourth of her extreme length?—If provision could be made for carrying such heavy weights near the extremities of a ship,

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a ship, I think it would be the most formidable armament a ship could have, a broadside armament combined with a turret forward and a turret aft. I would even go so far as to say that if these two were heavy guns, on a turntable with a very small shield to protect the gun-carriage in the direction in which the gun itself was firing, I should consider that a most effective armament.

689. My question particularly alludes to placing them nearer the extremities of the ship, that is to say, within one-fourth of the length of the ship at either extremity?—As I have said in my last answer, if provision could be made in a good serviceable sea-going ship for carrying them there it would no doubt be a formidable armament; but I should very much doubt whether so great weights could be carried so near the extremities.

690. Captain *Kennedy*.] In the present state of gunnery, what thickness of armour do you consider indispensable in a sea-going ship?—I should not call a plate thoroughly secure against penetration above the water's edge if it were less than eight inches in thickness.

691. *Chairman*.] Do you mean besides the skin?—Eight inches thick on the ordinary ship's side, besides the inner skin and the ordinary wooden backing.

692. For what distance do you think you could insure with a 12-ton to penetrate the "Bellerophon"?—A 9-inch 12-ton gun with steel shot would certainly penetrate the "Bellerophon's" side at from 600 to 800 yards; probably at a greater distance.

693. Captain *Phillimore*.] With square-headed shot?—With shot of any form of more than 200 pounds weight.

694. Captain *Caldwell*.] Could that be done with any less sized gun than a 12-ton gun, that you are aware of?—Not with certainty.

695. In your former evidence the opinion you expressed as to the comparative merits of the turret-ship with one armed on the broadside, depended on the power of the broadside ship to carry and fight efficiently 12-ton guns, as it has not yet been practically proved that iron-clad ships can carry and fight such guns in a sea-way, and if in practice it is proved that they could not do so; in that case would not any ship armed with guns of less power, or rather armed with guns the largest at present in use, 6½-ton guns, be placed at a great disadvantage if opposed to a turret-ship, which it seems undoubted can carry and fight 300-pounders?—She would certainly; my opinion as to the efficiency of the broadside armament is entirely based on the power of a ship so armed working 12-ton guns at sea, and I can see no reason why you should not work heavy guns on the broadside as easily as you do in a turret; I would go further and say that we must work 12-ton guns on the broadside, if we are to keep up with foreign armour-plated ships; if we cannot do it with our present appliances, we must find means of doing it.

696. *Chairman*.] Mechanical means?—Yes, mechanical means; but I do not feel any doubt myself as to our power of working 12-ton guns on the broadside with the means we are now preparing with the same facility as in a turret; that, of course, is merely matter of opinion.

697. I wish you to consider the circumstances of a ship in a sea-way when guns can ordinarily be worked?—One great disadvantage that a broadside ship has over a turret-ship, is in shipping the water at the ports; that refers just as much to the difficulty of working small guns as heavy guns.

698. I have mentioned especially iron-clad ships, because it seems to be undoubted that the motion of iron-clads is very much quicker; they roll deeper than ordinary wooden ships, therefore the difficulty of working the guns must be so much the greater on the broadside?—As regards the rolling of a ship, a quick roll is more impediment to working the guns than a deep roll; and I think it is generally acknowledged that by raising the centre of gravity in the iron-plated ships, we should get an easier ship and a slower motion. This is an advantage that the broadside ship will possess over the turret-ship—they will probably roll deeper, but slower.

699. With reference to your last answer, as you will see by looking at the model and the drawings of the proposed ship, her guns will be 11 feet 6 inches out of the water, and the lower port sill of the "Pallas" will be 7 feet 6 inches, do you think that the guns being raised that much higher would be injurious to the ship, and if not injurious, would it not be an advantage?—As regards the shipping of water in the port, there is no doubt that the extra height is an advantage, but I do not think it will be found, even with that extra height, that there would be much less water shipped in the turret-ship than in the broadside, because the deck guides the water right into the ports. I would also observe that the higher the guns are above the centre of motion of the ship the more difficult they are to work. In a gunboat, where the guns are near the water-line, and near the centre of motion, there is no difficulty found in working heavy guns, rolling 20 degrees each way, but when they are raised up, as they are in a large ship, the momentum of the guns becomes so great as the ship is rolling, that it increases the difficulty of working them very much indeed. That is the only thing which causes a difficulty in working them, in fact; it is not the incline.

700. Taking the centre of motion as to rolling to be about the water-line, do you think that the raising these guns 4 feet will be a disadvantage to fighting them, taking into consideration the advantage of their being higher out of the water?—Upon the whole I think the advantage is in favour of having them higher out of the water.

701. Captain *Caldwell*.] As in the "Pallas," the arrangement for fighting the guns, in order to do so on the bow, it is necessary to transport the gun to the port opening on the bow, would not that be a difficult operation in a sea-way, and supposing she carried 12-ton guns, not a very practicable operation?—Unless more means are provided than is usually the case, it is an operation, I think, that could not be performed under fire; it would be a difficult operation, one requiring very great care to perform in a sea-way. I see no reason why the corners of the "box" on board the "Pallas" should not be rounded, and an arrangement made that one pivot should command both a broadside and a bow port.

702. Such shifting of pivots would of course involve a considerable loss of time, would it not?—It must involve time, and it would require a great deal of care, unless, as I have mentioned, one pivot would command both ports.

703. *Chairman*.] With regard to the pivot system, I believe it is the opinion of some naval officers that heavy guns, of the weight, say, of 12 tons, and upwards, could not be so usefully worked

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worked on the pivot system as on the rear-chock system?—I consider it quite out of the question working heavy guns, that is to say, guns above five tons, on the rear-chock carriage. In the first place, you have no means of controlling their recoil when fired with heavy charges, and the difficulty of pointing them would always be very great. You would have no control over them at all. The question of the comparative advantages of slides over rear-chock carriages for heavy guns has occupied my attention to a considerable extent, and I have no hesitation in speaking in favour of the slides.

[The Witness withdrew.

Adjourned.

Admiralty, Friday, 19 *May* 1865.

PRESENT:

Vice Admiral the Earl of LAUDERDALE, in the Chair.

Rear Admiral Yelverton.
Captain Caldwell.
Captain J. J. Kennedy.
Captain H. B. Phillimore.

Captain G. T. P. HORNBY, R.N., called in; and Examined.

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704. *Chairman.*] I BELIEVE you are Captain of the "Edgar"?—Yes.

705. And that you have been in her two years?—Yes.

706. I believe she bears the flag of the Admiral commanding the Channel Squadron?—Yes.

707. From what you have seen of the iron-clad ships at sea, do you think they are easier in a seaway or more uneasy than those that are not iron-clad; I mean with regard to their pitching and rolling?—From what could be seen externally, the "Achilles" was decidedly easier than any other ship in the squadron; very far easier.

708. Are there any wooden ships in the squadron besides the "Edgar"?—No, only the "Edgar;" she was easy; the "Black Prince," of course, pitches less, and probably rolls a trifle less than the "Edgar," the "Defence" about equal, and the "Prince Consort" much more uneasy.

709. How was the "Hector"?—I should say the "Hector" was more uneasy than the "Edgar;" she and the "Prince Consort" wallow in the water; that is the only term I can use for it; they are like dead weights in the water; they do not rise; the "Achilles," on the other hand, was most remarkable; she seems to lift to the sea as a wooden ship does.

710. Was she more lively than the "Warrior"?—Much more so; we saw very little of the run of the water up her side that we saw in the "Warrior" and the "Black Prince;" they do not rise so much in the sea as the water runs up them: the "Achilles" seems to lift.

711. Then, do you think the "Achilles" decidedly the best of them?—No, because she carries no guns.

712. But as a sea-boat, I mean?—Yes, as a sea-boat.

713. Compared with other ships of the same tonnage?—Yes; and I should like to add that I believe the "Defence" would make as good weather; she is very lively, and I believe she would make as good weather as any ship need do.

714. I think you said that the "Achilles" had no armament?—No; the "Defence" is armed up to her mark; she has the armament for which she was designed.

715. Captain *Kennedy.*] In the centre?—Yes; the "Defence," from being a smaller ship, of course, has more motion; but she is a good sea-boat, apparently.

716. In the iron-clad ships, in ordinary weather, when they were rolling and pitching, have you observed whether or not the ship's bottom, below the iron armour, was frequently exposed?—It is quite true that the "Prince Consort" and the "Hector" do expose their bottoms considerably; but it is to be remembered that the other ships are moving very much, and it would be difficult to take advantage of it—for instance, we in the "Edgar" would probably be moving almost as much as they are; and therefore, though you laid your gun to take advantage of her bottom, you would have to wait a long while before the two ships would roll so exactly in the right point as to enable you to catch the right place. I do not think you would ever catch the "Achilles."

717. You are speaking of ordinary weather?—Yes, of ordinary weather.

718. And when an action might be fought?—Exactly; for instance, the other day, when we were going out, we were rolling 22 and 24 degrees; the "Achilles" was only rolling 14; the "Hector" and the "Prince Consort" were rolling about 28; and the "Achilles" was so steady that she might easily have taken advantage of those ships.

719. Captain *Phillimore.*] Do you think ships that are armour-plated all round expose their bottoms below the armour plates more at the bow and stern when pitching, than amidships when rolling?—I should doubt it; the motion is so much quicker; the water running against the bows, the ship does not expose her bows for the same length of time that she takes to roll over; she falls again rapidly, and the sea covers her bows again.

720. *Chairman.*] Have you considered the advantages and disadvantages of Captain Coles' moveable turret system?—Generally, I have done so, as all naval officers have done.

721. Can you point out to the Committee the advantages of it for a sea-going ship, taking it for granted that all sea-going ships that have the same qualities of defence, and the same qualities as sea boats, must be the same height out of the water, and must have the same amount covered with

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with armour plates of the same description?—It seems to me that the great advantage the turret gives for fighting purposes at sea is this,—that the turret-ship places herself in that position in which she lies the quietest; she either fights her gun at the bow-quartering or at the stern-quartering.

722. In the model of the proposed ship, you will see the extent of training which the gun will have? (*Referring to the Model.*)—That is nearly right ahead; in that position she puts her bow to the sea, and of course lies most easy with regard to motion, both as to rolling and pitching. The broadside ship to oppose her must then lay herself in the trough of the sea, and across it, in order to bring her guns to bear; therefore, the turret-ship will have a great advantage, she lying on the quietest point, and the broadside ship lying on almost the most unquiet.

723. Does this advantage depend in a considerable measure upon which vessel has the greatest speed?—Yes, it does so; but the broadside ship must have almost infinitely greater speed to get an advantage over the turret-ship.

724. Admiral *Yelverton.*] The enemy's ship being in the trough of the sea, she would be lying parallel with the turret-ship, would she not?—No; she would not be lying parallel, because you would bring the bow of the turret-ship on to her.

725. But the other ship might be a little ahead of her and training her guns aft. Supposing your vessel to be on the port tack, and your adversary to windward of you, also on the port tack, a little ahead of you, he would be training aft, and not more in the trough of the sea than you, would he not?—But you force him to turn his broadside to you. You come on to his starboard quarter, he then must turn his head off to bring his guns to bear on you. The great power of the turret-ship is, that she commands nearly the whole arc of training, whereas the broadside ship must be confined to an arc of about 70 degrees, 35 each way.

726. *Chairman.*] When you mention almost unlimited training, you mean, as far as the obstructions on the deck will admit, I presume?—Yes, as far as the obstructions on deck will admit; but I understand from seeing the "Royal Sovereign" that those obstructions are very small.

727. The Committee particularly allude to the model which you see before you, namely, of Captain Coles' proposed sea-going ship?—I cannot, of course, give any answer as to how many degrees are included between these marks in training.

728. In speaking of the great advantage of unlimited training by the moveable turret system, I suppose you know that in the box system the guns can be fired within 15 degrees from the line of keel each way?—Judging from what I have seen of the "Enterprise" and the "Research," I should say the bow guns will only train from about 15 degrees through an angle of 10 or 12 degrees; but then there is a large dead angle before she can bring a broadside gun to bear. To show how large this angle is, I would state an experiment that I saw Admiral Dacres try. He went to inspect both ships at different times; they were lying within two cables of the "Frederick William," 90-gun ship. He said to the captain, "Point at the 'Frederick William,'" the guns being in the broadside ports; he could not bring a gun to bear. The Admiral said, "Shift the gun." He could not then bring the gun to bear.

729. Not when it was shifted?—No; the "Frederick William," 90-gun ship, lying within two cables, broadside on, could not be touched. I believe the dead angle was nearly 34 degrees.

730. Then you think there must have been an arc of nearly 30 degrees through which no gun could point?—Yes, more; 34 degrees.

731. Have you seen any of the 6½-ton guns worked in an ordinary sea-way?—I have not been on board the ships when that was done. Captain Willis tried the experiment with one, on the passage out, against a 60 lb. 95-cwt. gun in a sea-way.

732. Could you state about what her rolling was at the time?—She was rolling about 26 degrees. He reported by signal that the 95-cwt. gun was well under command, but the 6½-ton was barely so, or words to that effect; and that in firing it they had damaged the slide. I will not be quite certain of the words of the signal.

733. Have you heard in what way the gun was barely manageable, or how it broke the slide?—He afterwards told me verbally that the gun fetched way, that the men were afraid to go near it, and that it was a long time before they could bring it up. I fancy they had to run the gun out, and jam it out.

734. Do you know whether both guns were worked in the same way?—Yes, I believe so.

735. The same system of carriage, and worked in the same manner; or had one more mechanical appliances than the other?—The compressors of the 6½-ton gun, I believe, are supposed to be stronger than those of the 95-cwt.

736. Captain *Kennedy.*] But there were no mechanical means?—Only pulleys.

737. *Chairman.*] Were both on slides?—Both were on pivoted slides, I understand. I think hers are all slide guns.

738. Captain *Kennedy.*] And worked in the ordinary way?—And worked in the ordinary way.

739. Admiral *Yelverton.*] Have you considered at all the amount of injury the turret is liable to from its formation, either from shot or shell?—I am not aware that any experiment has been tried, except the one on board the "Trusty," in which I understand the turret was completely riddled, and when they went on board it worked as well as ever. That could not be the case with any gun carriage.

740. When I speak of the danger which the turret is exposed to, I mean the machinery by which it is worked, not the turret itself; have you considered that at all?—Casually—on board the "Royal Sovereign;" and it has appeared to me that there is much less danger to the machinery of the turret there, than there would be to the slides of a gun mounted in a broadside port.

741. Do you know the weight of the turret, which is proposed to be put into this ship?—I think I have heard that it is about 130 tons.

742. In all it will be 176 tons, with fittings, without guns; do you consider that with the same weight of material any other mode of armament would afford equal or greater power of attack and defence?—I do not believe that the same weight of material would protect two 600-pounders, capable of inflicting as much damage as those in the turret.

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743. *Chairman.*] In any other way?—In any other way.

744. Admiral *Yelverton.*] If you had your choice, in going into action, of commanding a turret-ship with one turret mounting two 600-pounders, or a vessel with two turrets mounting four 300-pounders, which of the two vessels would you prefer to command, as a sea-going vessel?—Accepting the present superiority of the 300-pounders over all the armour plates they have been tried against, as a fact, I would rather have the four 300-pounders than the two 600-pounders.

745. In two turrets?—In two turrets, because you would have a greater number of chances of hitting, and a blow with a 300-pounder, it appears, is as effectual as anything can be; it destroys everything; therefore the power of the 600-pounder could do no more; but if the ships were more heavily armoured, if you were opposed, for instance, to some of the American vessels which they say have 15-inch plates upon them, it might require the whole power of the 600-pounder to overcome the resistance, and in that case I should prefer the 600-pounder.

746. You do not overlook the advantage also of engaging two ships, which the double turret would give you over the one turret?—That would be an immense advantage no doubt, at the same time the motion of the turret is so quick from broadside to broadside, that if your first shot from the single turret-ship was effectual in one ship, you would hardly be sunk by anything before you had it reversed to the other side.

747. In revolving fire at one ship, the adversary on the other side could fire a shot into the weak portion of your turret, could he not?—I believe all the turrets are covered with armour plating as thick as any that is on the sides of any ship yet afloat, namely, 5½ inches.

748. *Chairman.*] This turret has 10-inch plates, where the guns are, for about 12 feet, but behind that it is only 6 inches?—That is greater than the armour plating of any ship that is yet afloat; I believe the "Achilles" is only 4½, the "Bellerophon" will be about 6; the "Minotaur" is weaker, it is 5½ and slighter backing.

749. Captain *Caldwell.*] What are the heaviest guns on board the "Edgar?"—The Armstrong 110-pounder.

750. Is there any difficulty in working that in a sea-way?—No, we have never found any difficulty.

751. That is a pivot gun forwards, is it not?—Yes.

752. Captain *Kennedy.*] You have spoken of the weak side of the turret; have you considered that the whole of your armament is in that one small space which a single shot penetrating the turret might render *hors de combat?*—It might, but on the other hand that single shot must strike perpendicularly to the surface of the turret; it must be fired from a position perpendicular to the surface which it strikes, otherwise it would be a glancing shot; there can be no absolute certainty in action; there is always a certain amount of risk and chance, and I should prefer the chances of the turret.

753. Will you look at the section of the turret before you; in a chord of 12 feet 6 inches, which is always presented to an enemy, there is only a curve of 20 inches, so that it is almost a flat surface always presented to an enemy of 12 feet by the height of the turret, whatever it may be?—It seems a very small mark to hit, as any one who has ever tried a target at sea can tell, and even that is not an absolutely flat surafce.

754. As the deck from the base of the turret to the ship's side with thel slighest heel of five degrees would be exposed, woud not a shot entering it be most likely to strike the machinery which works the turret?—From the very small angle at which I understand the deck of the turret-ship would be inclined above the deck of another ship, and as I believe it is proposed to cover the deck with 2-inch iron, I do not think she would be more liable to damage than the ordinary deck of another ship, nor am I aware that if the deck was pierced the machinery would be more likely to be destroyed than the guns or the guns' crews of an ordinary main deck. I am supposing that the decks are the same height from the water, the upper deck of the turret-ship, and the upper deck of the iron ship.

755. In the plan before you the deck is to have inch iron and not two inches?—I should say that the protection is very little less. I have not examined carefully the plan for plating the upper deck, I therefore only speak generally.

756. Have you considered the system of the tripod masts as a sailor, and do you think it would answer?—I have considered it generally, but not in all its details.

757. Then you cannot give the Committee any information upon the subject as to the lead of the ropes, &c.?—No, it would only be matter of opinion.

758. *Chairman.*] Do you think, if it was necessary to manœuvre a ship in action under sail, that it could be efficiently performed by the men being all on the lower deck and the ropes let down there?—I should rather have the men on the upper deck certainly, and let them run their chance.

759. The question is, could they efficiently work her on the lower deck?—She might be worked on the lower deck, but I should prefer carrying them on the upper deck. A steam-ship would always go into action under very low sail, and the other ship would be under sail too.

760. You must bear in mind that we are asking about a cruizing ship fully rigged. You might be very likely to be out of coals, and there might be accidents continually happening to the engines?—I see no difficulty in bracing the yards round from the main deck, any more than in working the preventor main braces on a line-of-battle-ship's main deck, which is frequently done.

761. Are there any advantages of the turret system in a sea-going ship that you are aware of, which you have not been questioned upon, or which you have not mentioned?—There is the protection of the men at their guns, the protection against boarders, the superior ventilation, the fact that the guns will always be more secure than if they are in a broadside port, and the getting of the weights more into the middle of the ship and keeping them there, the ease of training, and the range of vision that the captain of the gun obtains.

762. Admiral *Yelverton.*] Looking at the distribution of the armour-plating on the ship, how far do you think it affords protection to the vital parts of the ship and the machinery?—I think there seems a weak point. If a shot should strike against the after bulkhead, it might be deflected downwards into the foremost boiler; otherwise she seems to me to be as well protected for fight-

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ing purposes as any of the iron-clads that are fit to go to sea, looking at it cursorily.

763. Captain *Phillimore.*] Do you think that if this bulk-head was taken away, and the armour plating taken right round the bows, it would alter her sea-going qualities much?—There is no doubt she would be slightly less lively, but I should perfer the belt being carried round.

764. For better protection?—Yes; the cellular bow seems to me to be a theory.

765. Captain *Caldwell.*] Which would you consider the superior vessel for fighting purposes—a vessel armed with a single turret carrying two 600-pounders, or a vessel armed with four 300-pounders, mounted, two on each broadside, with a 100-pounder in the bows capable of firing direct ahead, and a 110-pounder Armstrong aft, capable of firing on either quarter or astern; the "Pallas" is such a vessel as I have described; which would you sooner have?—I should prefer the heaviest armament, namely, the two 600-pounders in one turret.

766. From your observation as to the power of working the 6½-ton guns, or from your experience of the way in which they have been worked in the iron-clad ships, do you think it possible that a 12-ton gun could be efficiently fought upon the broadside?—I do not think that a gun on the broadside could ever be fought with as great safety as the gun amidships, because there must always be a difficulty if the one gets out of the port in a sea-way of getting it back again when the ship is rolling to leeward.

[The Witness withdrew.

Rear-Admiral R. SPENCER ROBINSON, called in; and Examined.

Rear Admiral *R. S. Robinson.*

767. *Chairman.*] You are, I believe, Controller of the Navy?—Yes.

768. You have, of course, studied well the various modes of armament in our own ships of war, as well as those of foreign powers?—Yes, I have, particularly so.

769. You have, I believe, carefully considered Captain Coles' proposed plan, now before the Committee, namely, a sea-going ship with one turret, armed with two 600-pounder guns?—I have carefully considered that plan.

770. The plan and model before you will, I believe, give you the particulars of all the various dispositions of the weights, the armour-plating, and other points connected with it, which of course you have looked at before?—Yes, I think the plans and Captain Coles' letter, which accompany the drawings, which I had in my possession for a short time, enabled me to form a very good idea of all the various merits and defects of the plan, but owing to the assembling of this Committee, and the consequent necessity of parting with the drawings before thoroughly investigating them in my office, there may be some few matters of detail upon which I may have formed some imperfect or erroneous notions. As to all the important points, and all the general principles, I am pretty certain that I am right; but from having the drawings so short a time before me, I am not sure that I may not occasionally have overlooked some matters of detail.

771. Leaving the plan of the vessel and her mode of protection and other details out of the question, do you think that there is any other mode of armament which, with the same weight of guns and the same weight of materials, as far as the turret and its movable parts are concerned, would afford equal or greater powers of attack and defence?—The question applies, I presume, to a sea-going ship.

772. Entirely to a sea-going ship?—As the question refers to a sea-going ship, I have no hesitation in saying that I think there are other modes of armament which, taking the same weight of materials as are now used in the turret-ship of Captain Coles, would give you a superior armament.

773. In reference to comparative weights in the system of armament, have you included the weight of the plated side, as it would have to run up to hold the gun; I allude to the box system; have you pitted the weight of the box against the weight of the movable turret?—What I think relative to that is, that for a sea-going ship no less weight is required in a turret-ship, to defend her, than in a broadside ship; that is to say, if you make a turret-ship with less armour plating on her sides than a broadside ship, if you do not carry your armour-plating up to the beams of the battery, the ship is unsafe in action at sea. Therefore I have always said to Captain Coles, I never could see that an armour-plated turret-ship required less armour-plating than a broadside ship. I know that Captain Coles is of a different opinion; he cuts down his armour plating to within one or two feet of the water-line, exposing the ship, I think, to almost certain destruction, as a sea-going ship. I think the true principle as regards an iron-plated ship is, that you must carry the whole of your armour plating up to your main deck or battery beams; then you can cut off a box, or not, according as you intend to have the ship armour-plated from end to end, or not.

774. Bearing in mind that you are limited to the same weight of guns, say 50 tons, and that the turret is estimated to weigh 176 tons, in what way would you distribute the weights, so as, in your opinion, to lead to greater advantage?—I do not think the weight is distributed to the best advantage for the armament and sea-going qualities of a ship in the turret system.

775. How would it be better distributed, in your opinion?—It would be better to distribute it on the broadside of the ship, keeping it as central as you possibly could.

776. That would be something on the box system, I suppose, would it not?—I think the term "box system," gives persons a very erroneous idea of what really is done. In most of the ships of the navy, with few exceptions, you stop the iron plating short of going right round the ship's extremities. The "Warrior" is precisely on the box principle, if it is to be called the box principle. I think the very best distribution of weight you could make is that which is very like the "Solferino" and "Magenta." In the "Bellerophon," and all our ships that we are now constructing, we stop the armour short of the extremities of the ship; and in order to prevent a raking fire destroying you, we put armour plated bulk-heads across the ship. I think, if that is the box principle, it is the best principle which can be acted upon. All I would say in general terms, without considering this special design is, that I should consider for a sea-going ship, the principle of putting the guns in the broadside, and defending the extremities by athwartship bulk-heads, to be the best arrangement that could be had; and whatever good might arise from following the turret

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turret system, I should prefer a sea-going ship the other way, that is, on the broadside principle.

777. Then you consider that the proposed plan of Captain Coles', viz., one turret with two 22-ton guns in it, as shown in the drawing in the model, is not a desirable plan for the armament of a sea-going ship?—The armament I object to on two grounds, first, that as you have only two guns which must be pointed at the same object; if you are engaged on both sides you are placed at a very great disadvantage; for, however you may turn your turret round, you would always expose the weak side of the turret to one of your enemies, and your fire must be distracted by turning first to one side and then to the other, and I should think the chance of hitting an object would not be so good as if you kept your gun bearing upon it all the time you were loading and preparing to fire; secondly, I think a turret on Captain Coles' principle in a sea-going ship is exceedingly liable to be jammed, and if jammed the whole of your offensive force is entirely destroyed. Those are the two main objections which I have to placing all the armament of a ship in one turret. But, in addition to that, I have a very serious objection to the movable turret system at all in a sea-going ship. One particular point is this, that whenever a sea-going ship is inclined towards the enemy, and unless she has a certain degree of facility for lying over, even without canvas, she would prove an awful roller. As, therefore, all sea-going ships ought readily to lay over two or even three degrees with a beam wind, an enemy to leeward of such a ship armed with Captain Coles' turret, finding the deck of that ship inclined towards his fire, would have no difficulty in sending shot horizontally through it, which, striking the turret below its armour, would probably ruin the whole fabric. The base of the turret has no armour-plate, and is defended by nothing but a wooden deck. Captain Coles has, besides, an iron deck, one inch thick, and I believe he trusts a great deal to that for deflecting the shot.

778. There is a glacis plate?—Yes, but that does not extend to the side of the ship.

779. That leaves seven feet of deck exposed?—Small or large, the Committee can easily see what a horizontal shot would do if it once got below the armour-plate of the turret; anything it comes across it will smash to pieces; that is one objection to a sea-going ship with a turret. I can show the Committee some drawings of the rams "Scorpion" and "Wyvern." (*Witness here pointed them out to the Committee and explained them.*)

780. You have pointed out some objections to the movable turret itself; would you state any objection that has occurred to you to the mode of arming the ship with two such heavy guns as 22-tons, called 600-pounders?—It is a gun that is totally unknown, a speculative gun. I can only say this, that if such guns are ever to be used afloat, I conclude they can only be used in a turret, I mean by that that the gun should be put on a revolving table and be covered by armour, that is, the turret principle.

781. But that does not involve a movable turret. Is it necessary, to carry the gun with equal safety, that it should be a movable turret?—I think so. I think the turret to go over a 22-ton gun should be movable, but I have very great doubt that any ship could be constructed to go to sea and answer all the purposes of a cruizer with guns of that weight in the turret. I have no doubt whatever that floating batteries and ships intended for harbour defence, and for the defence of roadsteads, might advantageously be armed with 22-ton guns (if the gun could be made) in movable turrets, but I have no belief that the same thing could be done in a sea-going ship.

782. Do you think that the security of the gun upon the central system of armament necessarily involves a movable turret?—The reason I think a movable turret preferable is, that by it, you may have a complete command of every point of the horizon; whereas, in any other system, your command of the horizon will be limited. I think the great advantage of the system of turrets is, that you should have no difficulty in pointing in every direction; neither masts nor anything standing upon your gunwale, and that you would have an uninterrupted command right round the horizon, and that is an immense advantage for a floating battery, which induces me to say that I see no difficulty in putting any sized gun into a floating battery that does not require masts, yards, davits, catheads, and all the things that must be on a ship's gunwale; but I see the greatest possible objection and difficulty to doing the same in a sea-going ship.

783. Of course the turret system peculiarly applies to heavy guns?—Exactly so.

784. Are you aware whether the French have any sea-going movable turret-ships at present, or whether they have tried the system of a movable turret for a sea-going armour-plated man-of-war?—No, they have not. The French have no sea-going ship on the movable turret principle, and I am perfectly persuaded that if they had believed it possible to make a more effective ship by arming her with movable turrets than on their present broadside system, they would undoubtedly have done so; for the French are the great inventors and originators of armour-clad ships, all other nations, including ourselves, having followed in the course they have pointed out. I believe I may say that M. Dupuy De Lôme, who is, without doubt, the greatest naval constructor in the world, disapproves of a sea-going ship with movable turrets.

785. Do you happen to know whether any of the other European powers have sea-going turret-ships. I do not mean gun-boats, or what you may call coast defence ships, but I allude to full-rigged sea-going ships?—The only powers that to my knowledge are constructing sea-going turret-ships are the Italian and the Prussian Governments, though designs have been sent to Messrs. Laird for the construction of sea-going turret-ships for some other Government, but I am not in the possession of any information beyond that the thing is contemplated. The Italian Government have got a ship called the "Affondatore," She is building at Millwall, and if the Committee would like, I will give them a short description of what the ship is. She is about 300 feet long, 40 feet broad, 20 feet draught of water, and 700-horse power. She carries two turrets, and a large pilot house containing the steering wheel; she is built of iron, carries armour up to a deck 2 feet or so above the water. This armour is 5 inches thick at the top, and 4 inches below, on 10 inches of teak; the turrets are, as in Captain Coles' ship, partly above and partly below the upper deck, which is from 9 to 10 feet above water, the machinery for working them being protected by, between deck, armour-plated casings running round it, this casing being much more in diameter than the turret. The bow of this ship projects forwards below the water more than the "Bellerophon's;" its weight is enormous as

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as compared with its buoyancy; its bow is so long and fine that the formost turret, although at a great distance from the stem, is but indifferently water borne, and in this respect the after-turret is situated in a still worse position, being very near the stern. I should certainly consider this ship very ill-suited to our navy if she belonged to it. Taking her as a whole, I think she would be a very unsatisfactory ship. Then there is a turret-ship being built for the Prussian Government; she is 200 feet long, 36 feet wide, 1,320 tons. Her draught of water forwards is 13 feet 3 inches, and aft 14 feet 6 inches. The height of the upper deck forwards from the water is 5 feet 7 inches, in the middle 5 feet, and aft 4 feet 6 inches. She obtained a speed of 11¼ knots; she is a strong ship and a well-built ship. She has two turrets, the outer diameter of each being 20 feet, the inner 15 feet. Those turrets are constructed on a similar plan to those of the "Prince Albert," the armour being 4½ inches thick, and doubled in the wake of each port. Each turret is intended to carry two guns, known as the Krupp gun, and although the weight is not positively known, it is believed they will be 100-pounders. It is reported that these guns are being manufactured in Germany. She is intended to be a sea-going ship, and I think that anybody who saw her would be very sorry to go to sea in her in bad weather.

786. From what you have stated, I think it appears that these turret-ships which are building for foreign powers have all two turrets—none of them have one?—No, I am not aware of any single turret ship being built.

787. Supposing the turret system was necessary to be adopted in a sea-going ship, do you not think that the two turrets would have a great advantage over the one turret system?—Yes. If the turret principle was preferred to the broadside principle, I think there should at least be two turrets for sea-going ships.

788. Can you give the Committee any information of the construction of the "Rolfe Krake," or any circumstances connected with the action between her and the gun battery?—The "Rolfe Krake" was constructed by Mr. Napier, at Glasgow, and no doubt was considerably weaker in her construction than either the "Prince Albert" or the "Royal Sovereign." The ordinary artillery to which she was exposed was 24-pounders, rifled on the Prussian principle, which her sides and turrets resisted most successfully; but upon one occasion she was severely damaged by a shot penetrating the deck, striking the base of the turret in the manner I have supposed possible, and putting her out of service for a considerable time until repaired. This information I got from private letters.

789. Captain *Phillimore.*] Can you give the thickness of the plates?—I have not the particulars by me, but, to the best of my recollection, 4½ inches, on 10 inches of teak, and 5-8ths iron under it.

790. Captain *Caldwell.*] The shot that penetrated the deck was from a battery, was it not?—Yes, and I believe from a 24-pounder rifled gun.

791. Captain *Phillimore.*] From a battery on a height, I suppose?—I cannot say positively whether that was so; I recollect its being from a battery, but I do not remember the height.

792. *Chairman.*] Are you aware whether the vessel was rolling or heeling at the time?—She was in perfectly smooth inland water.

793. Do you think there is any question as to the authenticity of the facts that you have now stated?—The fact of the deck being penetrated, and much damage being done to her in an engagement with the Prussians, is undoubted.

794. The principle of the turret depends entirely upon an iron collar; it works round on a large iron collar or hollow cylinder, does it not?—Yes.

795. As that appears to be its only support, independently of the weight of the turret itself; if the turret was struck by a shot, or if she was struck by a heavy sea in taking a heavy lurch, have you ascertained from the officers whose business it is to look into these points whether they think it is sufficiently strong to withstand such a shot, or such a sea, or the combined effect of both?—The strain that would be brought to bear upon the hollow cylinders and on the collars by the ship's rolling, or by any action of the gun inside the turret, undoubtedly is a matter that has been well looked into; and it is sufficiently strong for that purpose; but what the effect of a heavy shot striking the turret might be, is what nobody can tell.

796. And combined with the other?—Combined with the other much less so; but independently of the other, the only observation I can make relative to that is this; the American turrets, less well supported, mechanically, than ours, have received some very heavy shot; indeed, without ever deflecting or causing any injury to the central system; other parts of the turret have been injured, but not that.

797. Captain *Kennedy.*] The American turret turns something like a capstan, does it not?—Yes it is upon a different principle to ours.

798. Admiral *Yelverton.*] Do you believe that this vessel is capable of carrying two turrets?—No, she cannot carry two turrets as designed.

799. Not even if you reduced the weight of her armament?—No; you would have to alter the whole internal economy of the ship.

800. Could she be made to carry two fixed turrets?—That would alter the distribution of the weights so entirely that, until you saw the weights and calculated them, you could not say what effect it would have on the ship.

801. So that giving her two turrets would require to give her a good deal more tonnage?—To give her two turrets would require a perfectly new ship, a perfectly new design.

802. *Chairman.*] Do you consider that with the same weight of material, namely, the weight of all the armour plating, the weight of the guns, and the weight of all the materials used for the movable turret, with any other mode of armament or any other arrangement, you could afford equal or greater power of attack or defence?—To answer this question with more precision than I have already done, I must take a little time for consideration.

803. From what you have heard, have you any reason to suppose that serious objections have been found to the movable turret system for sea-going ships, and that it has been condemned, or that it is about to be abandoned by any other power that has actually tried it?—I have reason to believe that the turret-ships built in America of the "Dictator" and "Donderberg" class have proved failures.

804. As sea-going ships?—As sea-going ships. I have a letter here, and if I might tell the Committee who wrote that letter to me, it would perhaps add very greatly to the weight of what I am going to read, which states:—"The 'Monitor' class of vessels is not approved of by our naval constructors and sea-going naval officers. The

'Puritan' and 'Dictator' you may set down as perfect failures. Our naval constructors are now in favour of fast sailing wooden ships."

805. Will you give the Committee the date of that communication?—April 1865.

806. Captain *Caldwell.*] Were they sea-going turret-ships?—Yes. I also know as a fact that a Board of naval officers has recently been sitting at Washington, which has unreservedly condemned the "Monitor" or turret system, except as applied to vessels for coast defence.

807. *Chairman.*] Do you happen to know whether there were any naval architects or builders associated with the naval officers on that Committee?—I am not sure; but the engineer in chief of the United States navy was with them.

808. Captain *Caldwell.*] What ships have we of about equal tonnage to the proposed turret-ship whose armament is considered to be superior to that of the proposed turret-ship?—I do not think we have any of about equal tonnage.

809. Not with a single turret?—No, we have nothing like 600-pounders.

810. Supposing she had one turret with 300-pounders, which it is well known the turret could carry, is there anything at all equal to that?—In point of armament, no, I should think not. It is a difficult question to answer, because it comes to this; if you had the same armament in a broadside you would have two guns on each side; in that you only have one.

811. It need not be the same size but of equal tonnage?—There is nothing of the same weight of armament certainly, but it would be quite a question whether a vessel with the much inferior armament of two guns at a side is not a better vessel than a vessel with all her guns on one side. For instance, we will take the "Pallas," although I do not think she was ever intended to compare, at least in armament, with other ships; she was simply intended to be a vessel of extreme speed; there was no other intention in building the ship than to give her extreme speed and a good water-line; the armament was quite a secondary consideration. The "Pallas" has four guns, 100-pounders; she has two of a side, four altogether on the broadside, in addition to the bow and stern guns; and there might be many instances in which the "Pallas" could defend herself better against two ships or against three ships than even the turret-ship would do; but if you take the weight of destructive power into consideration the comparison would be more favourable for the turret; of course, the "Pallas" armament is extremely inferior in weight to that of the proposed ship, but its more or less effective distribution is another question.

812. *Chairman.*] Do you think the "Pallas" could carry four 12-ton guns?—She could carry four 12-ton guns certainly without any doubt, but she is not intended for that, her armament was intended for something quite different.

813. Captain *Caldwell.*] Although she could carry them, could she work and fight them in a sea-way?—She could carry four 12-ton guns without doubt; the only difficulty would be that there would be a little less angle of training than we should like to have, but we should work these guns, if we worked them at all, by machinery, not by handspikes.

814. Then if this proposed turret ship was to have a speed equal to that of the "Pallas," or nearly so, and to carry this heavy armament, would she be superior or not to any other cruising ship of similar tonnage?—I have already given the Committee the reasons why I do not think that for a sea-going ship the turret is equal to a broadside armament.

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815. One of the objections you raise to the defects pointed out in the turret being a liability of penetrating the deck, could not that be easily overcome by putting an additional inch iron plate over, which in that case, from opinions we have had, would deflect a shot, striking it at an angle of 10 to 20 degrees?—I do not think that an inch of iron would be enough; but, of course, you can do anything you please with a ship if you disregard sea-going qualities, you could put 3 or 4 inches of iron.

816. Suppose we put the glacis plate at 3 feet, there remains then a space of 5 feet in width by a length of 36 to 38 feet about the turret, which, if covered with an additional inch of iron, the additional weight would be of no great account, would it?—It would not be of serious account, but to prevent shot from penetrating the deck, you must have your whole deck from end to end covered with armour. If a ship fires from astern along the deck, it would be penetrated wherever it was not armour-plated.

817. Suppose she had an athwart-ship iron bulk-head?—That will protect the turret. You may protect the turret, of course, by 2 or 3 inches of iron, but then you have a different ship; if you only ask the question, whether the deck could be protected by iron, I say, of course you could have iron to it.

818. Do you consider the objection to a narrow belt, such as that proposed, being only 2 feet above the water-line, greater than that of having no belt at all for a large portion of the hull, such as in the "Warrior," the "Resistance," and the "Hector"?—I consider the narrow belt a very great danger to a ship, and I consider the absence of the iron plating round the bows in the "Warrior" and "Black Prince" almost fatal to their qualities as men-of-war; but, of course, the Committee is perfectly aware that nobody dreams of building "Warriors," or "Black Princes," or "Defences," now.

819. Captain *Kennedy.*] Do you think the moveable bulwarks of such a ship as Captain Coles has designed could be made strong enough to resist a heavy sea?—No.

820. Do you think there is space enough allowed in the box that surrounds the turret for 80 men to work in?—I must tell the Committee that these drawings have been out of my hands for a considerable time; but I had the greatest possible difficulty in seeing where the men were to take refuge during action, for many more men are necessary in the ship than are required to work the turret, and the armour plating stopping short as it does within a very short distance of the water-line, leaves no place on the between decks where the men would be safe from fire.

821. As in the "Royal Sovereign" it takes 60 men to work the two 300-pounders, we consider it would take 80 men to work the two 600-pounders; do you think there is space enough within the armour-plated box for them?—Apparently not; a point that is of importance is that you have no armour plating beyond 2 feet above the water-line; therefore, how are these men to be protected who must be outside the armour-plated box.

822. Can you mention the largest armour plating that you know of, as at present applied to British ships of war?—An experiment is now going to take place at Shoeburyness with 8 and 9-inch plates

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plates with upwards of 2 feet of wooden backing, and two iron skins, each three quarters of an inch thick. The heaviest guns we have got are going to be fired against this target, and upon the results will depend, I believe (but, of course, that will be decided by the Admiralty, and not by me), the construction of a ship called the "Hercules."

823. *Chairman.*] When you mentioned the heaviest guns you have got, do you allude to anything above the 12-ton guns?—Nothing; there is no gun that I know of; I have of course heard of larger guns, but I do not know that there is any naval gun approved above a 12-ton gun.

824. Have you considered Captain Coles' plan now before the Committee as to the system of working the anchors, and, if so, are there in your opinion any objections to that mode?—In the first place you must either have or not a permanent cathead. If you put a permanent cathead you limit the angle of fire in the training of your guns considerably. If you have catheads to fall down, there is awkwardness and difficulty, and when you have done all you can your anchor at sea must be upon your gunwale. Until you have eased your anchor down and got it out of the way, your range of fire is interfered with.

825. Do you think if they got it in on deck, your anchors would be as well secured as in any ordinary ship?—I think that bollards could be brought up, to which the anchors could be secured; it would be a difficult job and would take time to get them ready for letting go again.

826. But it could be done?—It could be done. What I mean to say is, that there are difficulties in working the anchor, which I have no doubt could be overcome, but they exist.

827. Do you consider that even if the anchor is got in on deck, from what you know of the effect of the sea shipped in a gale of wind, that it is safe without it is securely lashed to the deck?—No; the anchor must be very securely lashed to the deck.

828. Admiral *Yelverton.*] Have you considered the advantages and disadvantages of the tripod-mast system?—Yes, I have.

829. Is your opinion favourable or otherwise to that system?—It is too great an experiment for one to venture to recommend it upon a very large scale; but we have an experiment in process of trial, and which will give us, I think, satisfactory results. The "Wyvern," one of the rams which the Government purchased from Messrs. Laird, is to be fitted with tripod masts under Captain Coles' direction, and that will enable us to ascertain whether it is a safe mode of proceeding or not. I confess that in all sea-going ships going into action, the less mast you have to deal with, and the less gear the better; it appears to me there is a great deal of gear about this tripod plan.

830. Do you think, as a practical man, if the mast were shot away the two sheer-legs would support the mast and keep it up, topmast as well, and every thing?—No, I think not; I think it would break.

831. Captain *Kennedy.*] With strong chain backstays fore and aft, would it do so?—I think it would break in any motion; in smooth water it might not. Captain Coles showed us a very ingenious mode, some year and a-half ago, of leading the ropes; they were led entirely off the upper deck down on the main deck; they were not led inside the masts.

832. Captain *Phillimore.*] Do you think it advisable to manœuvre the ship with the ropes led on the main deck, as Captain Coles proposed?—Not this ship, on account of these bulk-heads (*pointing to the Plan*); I will not say it is absolutely impossible. Captain Coles is an exceedingly ingenious man; he could probably contrive some means of working the ship with ropes upon the main deck; but I presume that in action his ship, like all others, would manœuvre entirely under steam, unless she was disabled.

833. *Chairman.*] But supposing that the coals were all out, and the engines disabled?—Unless the engines were disabled she would probably fight under steam, and then she would not want her ropes.

834. Captain *Phillimore.*] With regard to the 300-pounders, could they be as well fought on the broadside as in the turret?—In the turret you will fight your guns more easily than you will in the broadside system; but I believe 12-ton guns could be fought perfectly well in broadside by the application of machinery which the Controllers's Department is now at work upon.

835. As regards the rolling of the ship in a sea-way on the broadside, the water is more likely to come into the ports in bad weather than on the turret system, is it not?—Certainly, more likely.

336. Then there would be circumstances where the turret-ship would be able to fight the 300-pounder guns, and the broadside ship would not?—Undoubtedly, as to the mere fighting of the guns, it would be so.

837. *Chairman.*] With regard to your report on the sea-going ship proposed by Captain Coles which is now before us, is there any part of it, or any point contained in it, upon which you have since altered your opinion, or which you had entertained when you wrote the report which you wish to correct?—I think not, but I should like to say one or two words to the Committee that I have only referred to incidentally in the report. I consider the unplated ends of the ship proposed by Captain Coles a source of such danger, and so incapacitating the ship from being really a man-of-war, that if in other respects I thought well of the design, if in every other respect I was satisfied the design would give the country a good man-of-war, that alone would be sufficient to condemn the design; and, with reference to the height of the armour-plating, which is only two feet above the water-line, I do consider it a very serious danger from plunging shot and from the accident of the motion of the ship. You must remember that when a ship is rolling or inclined towards the enemy, or from the enemy, a shot may come in at the top of the armour-plating on one side, and go right through and strike the armour plate on the opposite side; and we have every reason to believe, from experiments made, that it would drive the armour-plate off, that a shot passing in that way above the armour plating, and going out below the water, which is quite possible, might destroy the ship.

838. That is the great objection to the narrow band?—Yes, and throughout I have always been of opinion that when you intend, either for coast defence or for sea-going purposes, to have a ship armed on the turret principle, it is absolutely necessary to carry your armour plating up to the beams of the deck, as is done in the "Prince Albert" and the "Royal Sovereign," and when you do that you have then so much more weight of armour plating on your turret and about your ship than you need have in a broadside ship of

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the same force, that it is my opinion for sea-going ships that the turret principle is not as well adapted as the broadside, but I think exactly the reverse for harbour ships and cost defence ships; I think the turret principle by far the best, but I should recommend seriously that every turret-ship, whether intended for sea or for harbour, should have the armour plating up to the beams of her deck.

839. Captain *Caldwell.*] The armour plating which it is proposed to carry round the bows and stern, would you have it the same thickness as that on the broadside?—Up to a certain point.

840. My question had reference to the penetration by shot; the plate is tapered at the bow and stern as, I believe, in the "Royal Alfred" and other ships, is it not?—It is more or less tapered in all ships.

841. In that case this ordinary belt would be easily penetrated by a vessel capable of carrying a 12-ton gun, and I do not see in what way, then, the ship is better protected if she had the cellular system as proposed in the turret?—If the armour plating was put on in such a way as to make the bow, or stern, or curved part of a ship as impregnable to shot as the broadside of the ship, your argument would fall to the ground; the tapering is so arranged that, although we have not had perfectly conclusive experiments at present, the principle of the arrangement is that in armour-plating curved surfaces by a taper from 5½ to 4½ inches, sufficient resistance is obtained to the shot, which can hardly ever strike the plate directly at right angles. The 4½-inch plates were originally tapered to 3½, and even to two under the counter; that is, where the plating came to the curved surface of the ship. I need not tell the Committee we began with 4½-inch plates, which are much too light to resist shot now. I believe that no portion of a ship will ever be absolutely impenetrable; and all degrees of penetrability are proportional, they are all relative; although the protection afforded by tapered armour plates may not be complete, yet if the range exceeded 600 or 800 yards, it undoubtedly would afford protection; but the cellular system, even at a range of 1,200 or 1,400 yards, would afford no protection whatever.

841*. *Chairman.*] From what you have said, do you think there is any use in armour plating if it will not resist the ordinary shot that is likely to be fired at it. If it is considered that 6 or 8-inch plates properly backed are necessary to resist this shot, do you think that tapering away the plates, as they are shown on the proposed model, or as they are done in many other ships, at least three or four inches, would be of much use, or do you think it might even do harm instead of good?—At long ranges they will keep out ordinary shell. They will require complicated and expensive shot, and arrangements to go through them; and where it is the habit to taper plates, as shown in Captain Coles' drawings (for he has diminished the thickness of his plates), I think the arrangements are judicious. I only regret that Captain Coles has found himself obliged to stop short 25 or 26 feet from the stem; I think his ship would have been a better one if he could have contrived to get his armour plating right round the bows.

842. But when these thin plates are penetrated by a shot, is there not more harm done to a ship than if there had been no plates at all?—I do not think so. I think the ravages of shot which can pierce armour plates will be very great and very considerable; but the armour plate always has afforded a certain amount of protection, even if it is penetrated.

843. Captain *Phillimore.*] If the foremost thwart-ship armour-plated bulk-head was done away with, and the armour plating carried on round the bow, do you think that it would be an improvement?—I do not think that it would, for this reason; that you would get the weights much further from the centre of the ship. Supposing the lines of the ship had been constructed for the purpose of carrying the armour plating right round the bows of the ship, I think it would have been a better design than the one Captain Coles has furnished.

[The Witness withdrew.

Adjourned.

Admiralty, Tuesday, 23 *May* 1865.

PRESENT:

Vice-Admiral the EARL of LAUDERDALE, in the Chair.

Rear-Admiral Yelverton.
Captain Caldwell.
Captain J. J. Kennedy.
Captain H. B. Phillimore.

Commander R. A. E. SCOTT, R.N., called in; and Examined.

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844. *Chairman.*] YOU are a Commander in the Navy, I believe?—Yes.

845. And passed through the "Excellent" as a gunnery officer?—Yes.

846. I believe you have paid much attention to the experiments that have been carried on within the last few years against armour plates with the newly constructed heavy rifled and smooth-bore guns?—Yes.

847. And, I believe, you have yourself proposed to Government a plan of a rifled gun; and also a plan for carrying and working the heaviest guns on the broadside?—I proposed to the War Department in 1859 a naval gun so rifled as to be able to fire all the existing smooth-bore ammunition, accompanied by a plan of doing it, which is still under trial.

848. Are you aware of the thickness of the

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armour plates, and the strength of the backing, used in the last constructed ships, or those which are now being constructed in the navy?—Yes, both in our own and in the foreign navies.

849. Be so good as to name any ships, the sides of which you think best calculated to resist heavy shot?—I think that the principle of stopping a heavy shot, is rather to meet it by some material on the outside of the iron, with the thicker portion of the plate inside, and built into the ship.

850. Will you first answer the question as to the name of any ship, the sides of which you think best calculated for the purpose?—I think the plan adopted in the "Bellerophon" is the best of the ships in England.

851. You think the "Bellerophon" is the best protected of the ships in England, do you?—Yes, of English ships. I do not think the plan of armour adopted the best; I think there should be a softer material outside to serve as a buffer to deaden the blow of the shot and to prevent the destructive action on the frame of the ship that might otherwise ensue.

852. You mean to deaden the shot before it strikes the plating?—Yes, to keep the front of the shot from striking upon the plating itself.

853. Taking into consideration the strength of the "Bellerophon's" side as now constructed, what weight of gun, capable of carrying the heaviest charges, do you think it necessary to use against such a ship, in order to ensure the piercing or seriously injuring her side at about 500 yards' distance?—The least weight about 13 tons; but having regard to future warfare, I should prefer 20 tons.

854. The question now is, taking things as they stand; I am alluding to the gun being placed in a sea-going ship?—I understand the question to refer to a sea-going ship.

855. Supposing it to be necessary in sea-going ships to carry guns of about 13 tons and upwards, in what way would you mount them, or on what system would you train them, either on the turret system, the box system, or any other?—I think they might be tried in two classes of vessels, the one a corvette, upon which two of these guns might be worked, one at each end. The way in which I would mount these guns would be this: in the centre part of the deck there should be either a long single slide, or a double slide across the deck; the width of the vessel would determine where the pivot-bolts should be: there should be an immensely powerful pivot (the vessel of course being built for that) up through the slide. If you were firing when rolling much, you would not roll your slide off the pivot, which would firmly hold it so as to be governed in any weather. Having perfectly secured the slide, the next condition would of course be, to hold your gun-carriage firmly to the slide, and I think that by looking at the full-sized model now in the "Research," the Committee would have a clearer idea of the thing than by any explanation I could give them.

856. Admiral *Yelverton.*] Then if I understand you rightly, your gun would be a central pivoted gun?—Yes.

857. In the centre of the vessel?—Yes.

858. And will that turn right round?—Right round in every direction upon that fixed pivot.

859. *Chairman.*] You have described the mode in which you would mount the gun, namely, on the central pivot system, but you have not explained whether you would protect it by a box, and work it on the broadside principle, or in a turret, or by a moveable shield?—There is a difficulty in that question, from the fact of there having been no trial at all as to the thickness of shield or armour that would be required to keep out elongated shell filled with musket-balls. I believe that in action if a vessel were to be attacked at sea, by any other vessel, the action would be commenced with shrapnell shells, that is, shells that would burst at a short distance from the object, and send their bullets forward, so as to sweep the decks and enter the ports. It would be necessary to settle what amount of protection would keep these out, and then you might apply that amount of protection, if not too heavy, round your gun entirely, affixing it to the gun-slide. I am speaking now of the flush deck vessel with two guns. If it was found that the amount of weight to cover the gun-slide and gun-carriage would be excessive, then I would have no protection, or a very light partial screen, or mantlet, in front of the gun. My reason for that is, that the gun itself, which I would propose to use, is heavy, and very strong. I am speaking now of the new plan of gun, which I have no doubt will be adopted, Mr. Fraser's gun, which is four times as strong to resist shot as any of the guns we now have. That gun would be sufficiently strong to withstand any knocks it would get; my gun-slide equally so, and my gun-carriage the same: therefore all that would really require protection would be the few men working it. I consider that nine men would work the 20-ton gun, in the manner proposed by me, under any circumstances whatever; so that you would have very few men at the gun, and those men, if required, might, after fire, and when not loading, take shelter under their own slide, and under the rear of the gun, and they would be then, to a considerable extent, protected. Another reason why I should be unwilling to put heavy armour upon such a vessel is, that it necessarily must take from the speed of the vessel and her sea-going qualities, preventing her from having a steady gun-platform. The vessel that I would propose to mount two such guns on, would be of wood or iron, without protection, and from 2,000 to 2,500 tons.

860. Captain *Kennedy.*] Do you mean without armour plating?—Yes; not armour-plated at all.

861. Admiral *Yelverton.*] At what angle from the keel, forward and aft, would you be able to train this gun; at about how many degrees, do you think?—I should think about eight.

862. *Chairman.*] That is within eight degrees of the fore and aft line?—Yes; forward and aft. I would have a chase gun, bow and stern. I think it essential to have a light rifled gun at the bow and stern.

863. You mean, speaking of a sea-going ship, that you would train your gun where it was clear of the mast, and the rigging?—Yes; that you should arrange it so as to have all the training possible, by throwing your rigging together, and making arrangements, as well as you could. I should also have a light gun on each broadside, between the two, for boat attacks, or else you would be liable to boarding.

864. Captain *Kennedy.*] Do you mean as well as the pivot gun?—Yes; I would have two heavy pivot guns, a light gun for chasing and a light gun aft, with two on each broadside. I consider one gun a great mistake, because you might be attacked on both sides.

865. Then the proposed vessel would have six guns

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guns in fact?—Yes; two heavy ones and four light ones, and perhaps two howitzers (rifled) for vertical and horizontal fire.

866. Admiral *Yelverton.*] If you had to consider the question of turrets, should you approve of one turret with two very heavy guns, or two turrets with less heavy guns. When I say heavy guns, I mean 22-ton guns, as compared with 12-ton guns?—I think one turret is a mistake, because it is liable to be seriously damaged by hostile shot, and the gun's crews destroyed by molten iron dropping upon them.

867. Then you would prefer having two turrets with two 300-pounders to one turret with two 600-pounders?—Certainly I should; but I should prefer having one 22-ton gun in each turret; the two 12-ton guns placed side by side closely could not be so advantageously fired; they would not produce nearly the same effect. I think one heavy gun of 22-tons would produce just four times the effect that the two 300-pounders would.

868. *Chairman.*] Under no circumstances would you think it prudent to have only one turret for the guns in it, as they could only fire one way at a time?—Under no circumstances whatever; and for the distribution of the weights it would be better to put them at the bow and stern instead of at the central part of the vessel. When you have only one turret the smoke would hang about it, and you might be unable to see your enemy. I look upon the separation of the guns in two turrets as essential in that respect.

869. As I understand you, you advocate having no armour plating?—I think it is impossible to carry armour plates with advantage until you get up from the size of a corvette to a vessel of from 5,000 to 7,000 tons. If you have weak armour, you are in a worse position than if you had no armour at all; the shot striking upon the outside would carry the broken iron into the vessel, and would destroy your gun's crew. Moreover, any armour on the outside would when hit by heavy shot, press against your wood inside and knock out a large portion of the wood. I may instance the fact of the firing against the "Alfred," the armour outside caused two ports to be knocked into one. I have never seen it quoted, but such is the fact, for I saw the vessel in Portsmouth harbour.

870. Then you are of opinion that unless the armour plating is strong enough to resist the shot likely to be fired against it, it does more harm than good?—Yes.

871. Speaking of no armour plating, have you considered the effect of one 600-pound shell bursting in any moderate sized vessel?—The iron plate would not keep out a 600-pound steel shell, and if the 600-pounder be a common shell and fitted with a fuse, which would go through a wooden but not through a strong armoured ship, there is a great chance of premature explosion or not going off at all, but where the shell is properly arranged and fired against the iron plating, there is a certainty of explosion after going through: no fuse, however, has as yet been invented, as far as I know, that can be relied on when used with a large common shell fired with a heavy charge.

872. In mounting the gun on the plan you propose, do you intend it shall be fired through ports or over the gunwale, or that the gunwale should be turned down; take the "Pallas" for example, which is about 2,300 tons?—I am now preparing some drawings, one with the bulwarks to let down or to be carried inboard, the gun pivoting round as I have described, and another with ports in a fixed structure which would carry the light armour of which I have spoken (if I do not find it too heavy), merely to resist the shrapnell: the ports in this fixed battery would be so arranged that they would as far as possible have blank spaces opposite where there is any obstruction, so that out of one port you could take all the range till you reached the next, and so on all round the circle, shifting from pivot to pivot as necessary.

873. Have you seen the plan and drawings of Captain Coles' proposed turret-ship?—No, I have seen neither the model nor the drawings.

874. Will you well look over them. (*The Witness here examined them.*) Having looked at the drawings and model, and considered the weight of materials used in protecting and arming the proposed vessel, do you think a vessel could be constructed, that with the same weight of materials would afford equal or greater powers of attack and defence?—I think speed enters so largely into the power of attack, and the facility of movement is so essential for defence, that I look upon it that the vessel I have described would be more powerful, and especially so, for attack. I think with two guns worked in the way I have said, and turning round upon different pivots, she would be more than a match for the turret-vessel; besides the turret-vessel would be penetrable by the guns in the vessel I have described, up to 2,000 yards, and she would be penetrable at any distance by large shells falling on her deck.

875. Admiral *Yelverton.*] You mean that the armour-plated ship would be penetrable?—Yes; the armour-plated ship.

876. But what ship would not be?—They are all weak in that respect, certainly: I think the want of protection over the decks of our heavy armoured ships is a great mistake. Again, any accident happening, as I before mentioned, to the single turret—a shot going through, or a molten iron shell bursting at the top—would probably destroy your powers of attack.

877. *Chairman.*] Will you describe the gun and the weight you would propose to put into a sea-going turret-ship of the proposed size, with reference to the present power of resistance in ships' sides; what would you think it likely to be?—I should put in two 600-pounders, one at each end, being guns that we have now; they are 22½-ton guns.

878. When you speak of putting your guns at the two ends of a sea-going ship, will you describe in what portion of the whole length you would place such heavy guns—how far from the extremities: dividing the ship lengthways into four equal parts, in which of those parts would you place them?—Speaking roughly, I should say abaft the foremast, allowing the gun to sweep round, and before the mizenmast; therefore the guns would be very nearly the same distance from each other that they would be from the two ends.

879. That would be within one-fourth of the ship at each end, then?—Yes, nearly that.

880. Admiral *Yelverton.*] Have you considered the stowage of your boats in the sea-going ship that you have alluded to?—No, for I have not draughted her out, but that would be a matter of detail.

881. Do you see any difficulty in disposing of the stowage of your boats, consistently with the arrangement of your guns?—None whatever; because

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because you would carry your heavy boats in the central portion between your two guns; your vessel would not be more than 45 or 50 feet broad, your double slide would be about 32 feet, and your single slide half that length; with this you might bring your pivots a little on one side if you choose, or, using the double slide, with only a central pivot, you might shorten one part of your slide if you found it in the way of the stowage of your boats, but with the short slide you could easily bring it right round, so as to clear your boats. That is a matter which requires working out, with some diagrams.

882. *Chairman.*] With regard to the facility of carrying heavy guns, have you ever been in a sea-going ship in a gale of wind, armed with the old 95-cwt. guns, and have you seen them worked in a sea-way?—I have been first lieutenant in two vessels in which we have had those 95-cwt. guns.

883. Were they pivot guns, or mounted on the broadside?—They were pivot guns.

884. Be so good as to state the vessels, whether they were gun-boats or large vessels?—They were steam sloops, the "Salamander" and the "Vixen." Their guns could not be properly worked in a gale of wind, on account of being imperfectly mounted.

885. Have you heard that some experienced naval officers have great doubts whether even the 6½-ton gun can be worked efficiently and safely upon the broadside, in an ordinary sea-way?—Yes, I have heard so, and I do not think they can be, in the present mode of mounting them.

886. Captain *Kennedy.*] You mean without mechanical means—without tackles?—I mean with tackles on the usual plan.

887. Then how would you work these guns, or the very heavy guns we have alluded to, with security and safety?—By keeping the slides on rails, firmly held down by strong clamps or pivots, and by having sufficient means of controlling the carriage.

888. Mechanical means?—Yes; mechanical means.

889. When you allude to nine men working such heavy guns as you have spoken of, of course you mean that those guns are to be worked by mechanical means?—Certainly.

890. From your experience in working as a gunnery officer, do you think that any compressor now in use would secure such heavy guns as these, weighing 22 tons, if they fetched way at all, in running out or running in, in a sea-way; I mean, any compressors that are now applied in the service?—I do not think they would; and I am now making more powerful compressors: they are totally distinct from what we had before. I do not think that any compressor now in the service has sufficient power to control these heavy guns.

891. But you think there would be no difficulty in making one that would control the gun under any circumstances?—None whatever.

892. And you have contrived one now in the "Research," have you not?—Yes.

893. *Chairman.*] Have you seen the system of compressor used on the 22-ton gun called "Big Will?"—Yes, I know it well; it was taken from my drawing, which the Admiralty sent to the War Department, from whence it travelled to the Carriage Department, but from the way in which this compressor is put together it is not powerful enough; it is not properly arranged for so heavy a gun.

894. It is a series of plates acting on the sides, is it not?—Yes, it lacks a supporting compressor; it wants a greater depth of plate; and it wants all the baulks to be tapered so as gradually to reduce the recoil, without bringing a very sudden strain upon the slide and its supports.

895. In the plan you propose of mounting 22-ton guns in a vessel of the proposed size, about what length of the deck would you have to fire over?—The muzzle of the gun would be up level with the side of your ship, and would be 5½ feet above the plane of the deck. You would have to fire over a considerable portion of the deck, firing at the bow and stern, which I have considered carefully. I think you could not fire a rifled shot over the deck, but you could fire a round ball; the gas goes from the rifle shot, when it comes out, with a tremendous whirl round, and on land cuts up the ground in a remarkable way; from the round ball the gas has not that effect. That would be one of my reasons for going in for so large a calibre as I have mentioned. Another reason is, that when you are in a hurry in firing, the round ball can be rolled home at once, but with the elongated shot, you would be liable to be stopped in loading by any fouling, when the round ball would go home, and give you an advantage by going home quickly. Then, the round ball is much more easily loaded into the gun; it may be lifted in a variety of ways, and directly it is opposite the bore, it can be easily pushed in; an elongated shot must be placed so as to be fitted exactly to the bore before it can be pushed home. Another advantage of this large calibre and the large round ball used with it is, that the round ball moving so easily away from the powder charge, the gas does not evolve nearly so great a degree of heat; and the pressure upon the bore is not so great as with the elongated shot; the pressure of the ball not being so great, your gun would not heat so rapidly, and there would be no necessity for washing the gun out at each round, which has been hitherto done with the 600-pounder.

896. You have spoken of the facility of getting the round shot home; do not you think that with such a heavy shot, there would be some difficulty in keeping it in its place when home, under the present system, when the ship was rolling?—I think the grummet wad is a mistake. I think you must return to the old junk wad; that is the right thing to put in front of the round ball.

897. Do you think it would require that description of wad to keep it from either rolling out or shifting its position?—Yes; the elongated shot would also shift and leave a still more dangerous air space, that is, that it would slip away from the charge; it would therefore also require a junk wad.

898. Admiral *Yelverton.*] Do you consider that a gun or two guns, such as you describe, would be secure in bad weather at sea?—Perfectly.

899. You have no apprehension on that score?—None, whatever; they could be easily lashed each way, and your compressers are exceedingly powerful to keep them down upon the slides. I anticipate no difficulty in that respect.

900. Do you think that in rolling moderately, or even rather heavily, you would be able to cast those guns adrift to engage an enemy?—In any weather. It is somewhat difficult to explain this. The reason why I say so is, if the Committee will

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will allow me to go back to my former answer, supposing two compressors are secured, you fire the gun, and the compressors will reduce the recoil, and then hold the gun securely. We will suppose it to be far enough back for loading; you load your gun, and then you unclasp one of your compressors, and you catch the endless chain on each side; a man stands at the wheel (there is one wheel on each side of the slide); you will stand by the compressor that you have still got fast, until the word is given to slacken the compressor, when you run out the gun. Suppose the gun is so heavy, or that, from some cause or other, the men at the wheels are both knocked down, the man at the disengaged compressor secures the compressor, and the gun is held fast. This may be done whenever a very heavy roll takes place, and the compressor afterwards slackened until the gun gets out. When the gun gets out, you have your compressor, with the man standing by; it is instantly done; the other compressor slips the chain, and is then tightened against the baulks, and acts as a compressor; you fire again, and the same operation is gone through. If the gun is not far enough in for loading you merely run it back far enough, in a similar mode to that of running out, which is easily done.

901. Captain *Caldwell.*] Supposing that your compressor fails from any cause, or is damaged by the shot of the enemy, is this heavy gun then secure if the ship is rolling about?—You have two compressors; either of them is strong enough to hold the gun, and the gun-slide is intended to be arranged (which I have not mentioned) with a buffer in the rear of the slide, which would partially take up the recoil. Supposing both compressors are gone, the compressor irons would then come against the buffer, and press against it, so that the gun would be gradually brought up; it would not be so perfectly held, but still you would be able to fire it under most circumstances, for the gun would have its two breechings on.

902. Even with the rolling motion?—Even with the rolling motion, but not with a heavy rolling motion. You would then, of course, be in a difficulty; if any part of the gun gear was knocked away, you would have to supply it with tackles.

903. About what rate do you think it probable you would be able to keep up your fire in fine weather with these heavy guns?—That involves a consideration of a thing which has not been tried yet. There is no doubt there is a size of shot, say about 150 lbs., that two men at each side could easily push into a gun; if you get beyond that size, you get to a size that requires a good deal of lifting, or else the use of machinery. I consider the round steel ball of 363 lbs., used with the present bore of the 22½-ton gun, heavier than men could manage and handle well, and therefore I think that it is beyond my limit of size; round shot of the largest size that could be handled should be the guide for determining the size of the bore. Then you would rifle the gun, of course, to fire the elongated shell. You could thus fire elongated shell at a distance, and the round ball close to. With reference to firing over the deck, I would remark that when you are at a distance, there would be no necessity for firing over the deck, it would only be in exceptional cases, such as in the event of your being close to an enemy on your bow or quarter, that you would be firing the round ball, or where you were disabled and unable to turn the vessel round. I think that with such a weight of shot as I have described, and with which I should like to try a few experiments, you would be able to fire a round a minute. That is very fast.

904. At a target?—No. I think you might fire a round a minute at close quarters. I am speaking of the most rapid horizontal firing.

905. In firing at a target or an object, how would it be?—Then you would throw away your shot if you were to fire so rapidly as that. I think the act of running in and out could be done whether the gun was twenty tons or twelve tons with nearly the same quickness. Weight does not make the slightest difference in the use of the machinery; the loss of time is in the act of loading and pointing. The length of the gun, whether of 9 or 13 inches bore, is nearly the same. I do not myself anticipate the slightest difficulty in loading. What I would propose to do in loading with the elongated shot would be this: to have a couple of whips, one that you should pick up your shot with, and the other your rammer, if a very heavy one; then, on the rammer there should be a rope each way, with knots on it for the men on each side to clap on. I think you would load a 9 or 13-inch gun in this manner nearly as quickly that way as a 7-inch gun by the ordinary plan of loading.

906. We have it before us that in the American 15-inch gun, the rate at which it could be fired would not exceed once in a quarter of an hour in action?—That is through this difficulty: the gun is run out against the side, a box fits very close to the muzzle of the gun, and in that confined box there is no room for the men to stand and load, and to pass the ammunition into the gun. Another difficulty is that in turning the turret round, the hole for the muzzle is so small, they can never see the object aimed at, and the men who showed their heads above the turret, to point the gun, were constantly picked off by the fire from the garrison, which always managed to greatly subdue, if not to keep under the fire of the Monitors. I have had a good deal of conversation about these turrets with several officers that have been in them, and they have stated that when a shot struck the turret, the effect upon the gun's crew was to stun them; they were generally stupified for a short time after a blow from a heavy shot; and if a man was standing with his elbow against the turret, he was completely paralysed by the concussion, and had to be taken below.

907. Have you a knowledge of the strength of the construction of those turrets?—I have a knowledge of some of them. The one which is preparing, which is the strongest turret in the course of preparation, is for the new vessel, the "Puritan": that is to have four thicknesses of inch plates, a 4-inch solid plate, and four 1-inch plates outside. That is according to one of their latest drawings.

908. As to the turrets where the men were injured, how were they constructed?—They were built of 6-inch plates bolted together. There was no backing to take up the vibration.

909. *Chairman.*] Is it all armour?—All armour: if it had been made with wood on it, it would have been affected by the same blow to a certain extent.

910. This you had from information which you consider reliable, I suppose?—Quite reliable, I think, but the names could not be mentioned.

911. Captain *Caldwell.*] Do you anticipate that

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that the number of rounds from that gun when fired, would be from one to two, or from one to three, of an ordinary 68-pounder, or a 100 pounder Somerset gun?—It would be quicker than one to two. I think that the time consumed is in aiming. The way in which I propose both to elevate and to train is by a screw, with a man with a handle at each side, who could work it as easily as if it were a light weight to be moved. The amount which he would have to pull would be generally only about 10 lbs.

912. *Chairman.*] Did your informants speak as if they approved of the turret-system for sea-going ships, or did they lead you to believe they condemned them?—They certainly condemned them for sea-going ships, although they considered them well adapted for river and harbour warfare.

913. Admiral *Yelverton.*] What amount of depression can you give your proposed gun, in engaging an enemy to windward?—I happen to be just making drawings of that, which are not yet sufficiently advanced to allow me to answer with certainty.

914. Do you apprehend there will be any difficulty in depressing your gun 10 degrees?—The carriage that I am now preparing could be readily arranged so as to do it; it will be worked like an ordinary carriage. The port is intended to be closed round the lower side of the gun, so as just to allow it to train. You are almost always firing with a little elevation, and if you want depression for half a degree, you can also give it in this carriage, in the same manner as in the ordinary one; but if you want more depression than that, then you lift the gun by powerful screws fitted inside between the horns of the carriage. The moving parts are in guide plates, and connected together by stout transoms, so as to be enormously strong. You can get all the depression that way you want, as you may go on lifting as much as you like. You can also have a very small port, and you can likewise have all your space above the gun, so as to have a large field of vision.

915. Captain *Kennedy.*] You have described your ship as having six guns, I think, and you have heard of Captain Coles' proposed ship with two: do you think you would be able to engage her at sea under any circumstances with a chance of success?—Certainly, because every shot of mine that struck would smash through her thickness of armour plate and backing.

916. What would be the effect of his shot on you?—They would go through, but they would not make nearly so large a hole; they would go through my wooden side or my iron side, whichever the vessel might be built of. I should prefer, however, having soft iron or mild steel, in which they would make a hole and nothing more, a hole that you could easily plug, and his shells would not explode with the certainty that mine would. Nothing explodes with the certainty of a steel shell filled with powder inclosed in a flannel bag, and fired against armour, because it goes off with the friction caused by the plate's partially arresting the shell's progress. I have never seen an instance in which it has failed.

917. You have heard a description of the "Pallas," Mr. Reed's ship, upon the box principle; do you know her armament?—I think so.

918. With her supposed armament of four 6½-ton guns in a box, and 110-pounder pivot-guns in the bow and stern, would your ship fight her with a chance of success?—I should consider, as a gunnery man, that if the "Pallas" was armed in such a way as that, which is very different to what I believe will be the case, it would be a very great mistake. There is no necessity to limit her armament to these small guns, and if with such guns she did meet such a vessel as the turret-vessel, proposed, she would, of course, have little chance of success against the turret-vessel with the turret in the centre, but with a vessel with a turret at each end she would have no chance.

919. If she met your vessel, what should you say?—I should think she would have much less chance.

920. What protection would your men have at any time (I do not mean the nine men who would be fighting the guns, but the whole of your ship's company); what protection would they have at any time in your ship?—They would have the same absolute protection as in an armour-plated ship; for even supposing the guns to be equal, the shot would go equally through an armour-plated vessel as through my vessel, and, therefore, with the gun I am using, and a slight protection against shrapnell and case shot, my vessel would be better off, because the effect of the shot upon her would be far less, the shot would go through easier, and there would be much less damage. The damage in the vessel I propose could be easily repaired, if she were built of iron, by having large flat pieces of iron which could be screwed on and fitted in easily, so as to make the hole good again; but in the other case, with the armour plating, the vessel would soon be reduced to a perfect wreck. I see no way in which the repairs could be done in that case at sea.

921. *Chairman.*] But, in order to do this, you must have guns of 22 tons?—From 13 tons, which is the least weight, up to 22; but I am strongly in favour of the heavier weight, as it will give me a serviceable large steel round ball, and also steel elongated shells of large powder capacity. I likewise consider a large size of gun essential, because it can do the work with moderate charges, which will not overheat and overstrain the gun in rapid firing at close quarters. I feel sure that none of our new guns will stand the charges assigned them, and which are necessary to do the work, under the circumstances of close action at sea.

922. Captain *Caldwell.*] Your ship is a wooden ship, I understand?—Wood or iron. I would prefer iron.

923. If you were opposed to another wooden ship of 30 guns, which would be an ordinary armament of a vessel of the size, every shot from which would tell on your ship, in the wooden ship, and you are, of course, liable to all the casualties from 15 guns as opposed to two guns, and I say two guns, because I do not believe it is possible that you could work these smaller guns under the fire of the heavy guns, consequently you have but two large guns opposed to 15 smaller ones, and I should say they could be undoubtedly worked very much quicker than your own guns (probably two to one at the very least,) in that case there would be 30 shots hitting you to one or two of yours: you would be struck in the proportion of 15 to one; under these circumstances would not the vessel armed in that way be at a disadvantage?—I would say this, that my ship, in the first place, would never be in

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in a position in which she could not fire at least a third small gun as well as an after gun or the foremost one; that is the most unfavourable position; fighting abeam, she would be able to fire the whole of her guns; the shot from your 15 would go through and do little or no damage to the structure of my vessel, and the holes would half close and, in any case, be easily plugged. The calibre of the small gun is so small that the shell would contain a very small bursting charge; one shell from one of my guns bursting between decks would probably blow up the upper deck and a portion of the side; in fact, the effect of one of my shells would be equal to at least a hundred shells of the guns which the smaller vessel is supposed to carry, because the action of these shells, supposing them to penetrate and burst inside, would be never simultaneous.

924. Captain *Phillimore.*] Do you think a 600-pounder could be better worked on the slide you propose, than in the turret of the ship proposed by Captain Coles?—Yes, I think it could be better worked, because there would be more room; you would see your object better, and you would be moving the gun itself instead of the turret that carries the gun, which, however accurately the gun can be placed, never will give you the perfect line of the axis of the gun.

925. If a shot struck the gun-slide or carriage, would it not render the gun *hors de combat*?—No; the slide and carriage would be made sufficiently strong to resist grape and case without serious injury. The deck of the ship is intended to be sufficiently strong to carry the weight; if a solid shot struck the gun-carriage or the slide, it might injure the slide in one part, but you would be able to work the gun in some portion of the slide, in all probability, and the carriage would be constructed so as to allow sufficient support from other parts in case of a portion being smashed.

926. Do you not consider the slide and gun-carriage in a large gun like a 600-pounder, to be a thing that ought to be protected in a certain way against a shot, because with a heavy gun like that, there is a considerable amount of machinery connected with elevating and working the gun, which, if struck even by a small shot, might render the gun *hors de combat*?—A perfect protection would entail a weight which would be equal to that of the cupola; the protection against case or grape I think it desirable to have.

927. Not for the gun-carriage against heavy shot?—Not against heavy shot; the damage done to any part of the machinery working the gun-carriage or slide would not disable it, because the secondary plan, that of tackle or quoins, could then be resorted to.

928. Do you think that such a heavy gun as a 600-pounder could be worked in the same way with tackles and quoins?—Not in a heavy sea; it could be worked, with care, to a certain extent

929. How many men do you propose shall be the complement of the sea-going ship you speak of?—I should have the smallest number necessary to manœuvre her sails, a reduced complement.

930. What speed do you propose she should have?—From 15 to 16 knots, in fact the highest speed that could be given her; the vessel I have been describing is intended to be an ocean cruiser fit to go to all parts of the world, to be used for blockade, interrupting the enemy's commerce, conveyance of troops, and all the usual requisites of a war vessel. For a first-class maritime power I think it essential to have in addition to the vessel I have described some very powerful plated vessels, of from 6,000 to 7,000 tons, to carry the heavy guns I have already described in a central battery, and be protected by plates of sufficient thickness to keep out shot; this, I think, would be practically obtained by an iron vessel with a skin of 1½ inches, 7 inches of plating outside, and covered with a softer material, a buffer on the outside to break the blow of the shot.

931. No backing inside?—I would put all the backing outside.

932. What would you have for the softer material, soft wood or paper?—Paper would be the best. There is a company making paper that will resist shot perfectly. I think there would be no difficulty, if once you were to go into the manufacture, to get material. Soft wood, if you could get nothing better, might be used; but paper of a coarse kind would probably be found the best; it has the greatest resistance. Between the iron frames of the ship, wood might be inserted to absorb the vibration that would otherwise be occasioned by the blow of heavy shot. The decks of such a vessel should be of the thickness of 2½ inches of iron covered over with wood, I mean the lower decks placed about three feet above the water-line, and uniting the armour sides, so as to complete an arched bomb-proof over the vital parts of the ship at each end. The top of the central battery should also be covered with 2½ inches of iron, so that there would be a protection of 2½ inches of iron against vertical fire, besides wood and ordinary decks between such shot and the *bottom* of the vessel; and 8½ inches of iron, covered with paper, as a protection against horizontal fire. Light living decks for the crew should be erected. I would propose, further, to separate the guns by traverses, and to reduce the size of the ports. I am speaking now of a sea-going vessel designed on my plan. I do not mean to say that it is perfect; for it was drawn principally to illustrate the plan for carrying heavy guns.

933. Do you intend that the first ship you have proposed, namely, the unarmoured one, should engage batteries?—Certainly not.

934. Do you not consider that an efficient sea-going ship should be one that could engage a battery on a distant station?—I can only take the batteries that great maritime nations are erecting. If I take the batteries that the Russians are now erecting, of iron, I am satisfied that no vessels now in the service can engage them with advantage. The decks of all the vessels now built are the weak part, which the batteries standing higher will certainly search out with their plunging shot, and they are likewise penetrable by vertical firing; therefore I think such engagements would be certain destruction to our present vessels, quite as much as to the ocean cruiser that I have described.

935. You mean the wooden one?—The wooden or iron one. I think iron, or rather steel, far better than wood for the vessel.

936. Captain *Kennedy.*] Have you heard that experiments have been tried by firing at targets fitted somewhat similarly to what you have stated, iron-faced with wood, and that the wood was peeled off immediately?—The experiments alluded to were tried at Captain Inglis's suggestion. The baulks of wood were bolted on imperfectly, and not

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not confined. While they remained, the shot fired against them made only a small indent, but the fastenings being imperfect, shells in both instances got behind, and blew them off; but this target practice, firing at one point, is very different to what would occur in engaging a ship at sea, in which a concentrated fire would not be maintained upon the same small space.

937. Can you give the Committee any information upon the formation of the "Donderberg," American ship, which is supposed to be on this principle? — I believe it is somewhat on that principle, the wood is supported by iron. The way in which she has been described to me is, that wood, and that this wood is filled in between the iron, so as to make a compact structure, is again supported by stout iron beams; so that if you strike any portion you cannot splinter off large pieces, you can only splinter a certain small proportion of the wood which is confined between the iron; this is analogous to the plan that I would propose to carry out in fastening my buffer, which would have the advantage of being a cover to the armour-plate bolts. Notwithstanding the evidence I have given, if the Committee will allow me to express an opinion, I should be very sorry not to see the experiment with the turrets fully carried out, not in the vessel Captain Coles proposes, with one turret only, but in a vessel with two, with a 600-pounder in each turret, and four additional light guns, and perhaps four light rifled howitzers for *vertical* as well as for horizontal firing. The ship might be slightly enlarged to enable her to carry two turrets.

938. You mean that you should like to see the system carried out?—I should. I think we have so little experience that it would be of great importance to put it beyond doubt in a national point of view. I think the increase of size would be a great advantage as affording greater stability, and giving a steadier gun platform for firing at sea, as well as a much higher rate of speed to the vessel.

939. *Chairman.*] With reference to Captain Coles' moveable turret system, are there any points of advantage or disadvantage which you can point out to the Committee, and upon which you have not been questioned?—In taking the single turret and vessel proposed by Captain Coles, you have such an amount of deck to fire over when not firing right abeam, that, in all probability, just when you have your object on, you would be unable to fire, from the pitch of the vessel or even a roll; so that your firing would be of necessity exceedingly slow, as the turret would then, in case of losing your chance of firing, in all probability have to be turned again to wait until the object came on. The turret is large, and therefore very liable to be hit; the blow of a 600-pounder shot upon it would, in all probability, damage and perhaps destroy the cog wheels which turn it round; it would be liable also to damage the pivot upon which it turns. Were this damage to take place the turret would become fixed, being of such great weight. The top of the turret has small openings to give ventilation to the gun's crew; those openings would admit the molten iron from a shell dropping on it streaming through upon the crew, whose shrieks would be very demoralising to the whole ship's company. The small size of the port necessary to prevent the entry of a shell, renders it essential for the man pointing the gun (the captain of the turret), to be exposed, and he is consequently liable to be picked off: any accident to him would again delay the fire, and this mishap is the more likely to occur where of most importance, viz., at close quarters. I would say, further, with respect to it, that should the gun or guns in the turret become damaged, there are no means of replacing them, and the turret then becomes useless. The space that is taken up in the ship by the turret materially detracts from her value as a sea-going cruiser, and the reduction of space would be much felt in a tropical climate. The vessel, in order to carry the weight of the gun and turret at a sufficient height, is lower than is advantageous for an ocean cruiser; the boats there is great difficulty in carrying so as to lift them clear of the concussion from the fire of the turret guns. Lastly, from training the guns by means of the line of the turret, the aim can never be very exact: first, because there will be a slight difference between the line of the gun and the line of the turret; and, secondly, because the man who gives the word does not fire the gun, and therefore cannot perfectly allow for the motion.

940. You have stated the disadvantages; will you have the kindness to state any advantages that you are aware of?—The advantages of the turret are the giving a great amount of security to the gun, training it round easily, and under most circumstances affording a complete protection to the gun's crew within it; the passing of the powder into the turret without the necessity of its being exposed, as is usual on the deck of a ship, is likewise a great advantage, and for a harbour vessel, or for coast defence purposes, or floating batteries, the power of closing up the deck (by doing away with hatchways, as in the Monitors) so as to present a small vulnerable area, is attended with considerable advantages. With reference to this, I would say, that for a floating battery there could be no reasonable limit to the thickness of the armour upon her sides, or upon her deck, and her engines might be in such a case almost perfectly protected. I, therefore, think, for coast defence purposes the turret to be in some cases equal, and, perhaps, in some cases, even superior to the broadside plan.

941. Captain *Caldwell.*] Might you not add as a further advantage that, if opposed to any gun at present carried in a sea-going ship, it would be almost shot-proof?—Yes.

942. The largest gun at present in a sea-going ship being a 6½-ton gun?—Yes; but the Americans have got a few of 7½; they and other nations are just commencing with heavier guns; it can therefore hardly be an advantage with respect to a future vessel, because, before she is built, they will have these heavy guns afloat. May I be permitted to point out that a considerable part of my evidence has reference to future vessels, vessels which should, if I am right, be now commenced. But my evidence, unless this fact be kept in view, would tend to unfairly depreciate the vessels now built or partly built, and for which there was and still is a demand. I would further beg to remark that, despite my own views as to the best classes of vessels, I should consider it unwise to have only such special ships; and I sincerely believe that a prudent course has been followed in the having constructed a fleet of vessels of all classes, and that our iron-clad navy is better worth its cost than the navy of any other power.

[The Witness withdrew.

E. J. Reed, Esq., Chief Constructor of the Navy; called in, and Examined.

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943. *Chairman.*] I BELIEVE you are the Chief Constructor of the Navy?—Yes.

944. Have you examined the plans of a sea-going turret-ship proposed by Captain Coles, which are now before you?—Yes.

945. And have you read the explanation of his proposal, and statement of weights, which accompanied those drawings?—Yes.

946. You will see the speed that he estimates the ship will have, and the weights that she will carry; do you see anything in her construction that leads you seriously to doubt that she will be as efficient a vessel, or that she will not come up to the speed therein stated?—Calculating the speed of this ship in the same way in which we calculate that of other vessels, I cannot anticipate that she will steam at the rate of $13\frac{8}{10}$ knots. My reason for saying that is, that the power of the ship is supposed to be the same as in the "Pallas," while both the displacement and the midship section are greater than those of the "Pallas." The estimated speed of the "Pallas" was, in the first instance, before we completed the upper deck, nearly 14 knots; and when we inserted the displacement and the midship section of Captain Coles' ship in the usual formula, and deduced from it the speed, I made it $13\frac{3}{8}$, or half a knot less than Captain Coles' estimate of the speed. I should explain upon that point, that it is just possible that the "Pallas" may from some cause steam a little more than her estimated speed; but I cannot at all anticipate it with any confidence. It is just possible that the indicated power of the engines may work beyond what is contracted for, and of course the indicated power of Captain Coles' engines might do the same; the same advantage will hold good as to both ships. But then there is this further remark to make, that inasmuch as the "Pallas" would start at half a knot greater speed, an increase of indicated power would not give her so great an excess beyond the speed of Captain Coles' ship. With high speed, the difficulty of getting an increase of a fraction of a knot is greater than in the case of a ship of inferior speed, more power being required. I may mention, that although the formula in use in the service for estimating speed gives a very near approach to the actual results on trial, still we are always obliged to allow ourselves a little latitude in estimating speed in this way.

947. Are there any other points in her construction that lead you to believe she will not come up to Captain Coles' proposal, or be deficient as a man-of-war?—Does that apply to her construction? I ask that question because in forming the design of this ship Captain Coles was assisted by the designs of the "Pallas," and the "Bellerophon," and he has adopted the design of the "Pallas" very nearly as regards the proportions, and he has adopted the design of the "Bellerophon" as regards the structure of the ship. In adopting the proportions of the "Pallas" he has made no change which would touch the efficiency of the ship, but in adopting the structure of the "Bellerophon" he has made a change which would not be allowable in a constructive point of view, I mean with regard to the double bottom. He seems to have misapprehended the arrangement of the double bottom, as the proposed alterations would be incompatible with some of the objects for which the double bottom was inserted. I should say that as regards the efficiency of this ship, there are many questions left unsettled in the design of the ship as laid before the Admiralty, and I presume before this Committee. For instance, there are many necessary fittings, such as anchor fittings. I would mention, with regard to the anchors in particular, that Captain Coles shows, if I remember rightly in drawing No. 3, the plan of the upper deck, the capstans and cable fittings on that deck; but he says, in writing on the drawing, "If preferred cables may be led on the lower deck, doing away with the bitts on the upper deck, and thereby enabling the guns to be fired right ahead." That proposal touches, of course, a very vital point of the turret system, the especial merit of which is supposed to consist in affording a ready means of firing all round. As it is, the proposed turret-ship cannot bring her guns to bear at all upon an enemy astern, and with the cable-lifting and holding gear upon the upper deck she will be unable to bring them to bear upon an enemy right ahead. But I do not think that the alternative proposal to lead the cables on to the lower deck can be entertained, because that plan was thoroughly tried with several of the light wooden corvettes built a few years ago, and it has been found so objectionable on actual service that their Lordships have recently ordered it to be done away with, and as the ships come in for repair and refit, the cables are now invariably transferred to the upper deck in that class of vessel. As the turret-ship will have an upper deck no higher out of the water than these corvettes, and as she will inevitably be a heavier and less buoyant ship than they, there can be no doubt that to lead the cables in on her lower deck would result in failure, and in a necessity for the change before-mentioned.

948. You will see on the plan the number of degrees that the gun would be impeded by the bitts?—With reference to that, I may also remark that in every turret-ship which I have yet seen there have been fittings placed upon the deck which seem to me to have one very important effect, namely, that if they did not actually impede the fire to any very great extent, they would seriously impair the aim. In all statements that I have ever seen by those persons who believe in the desirability of resorting to turrets exclusively in a ship, one has heard of the great advantage of keeping the enemy on, and following her round with your turret. Now it seems to me that unless you make such a number of deck fittings connected with anchors, boats, and things of that sort, removable, as would make the clearing for action a most cumbersome and objectionable process, you must have so many of these permanent fittings standing up as to seriously embarrass the aim, when following the enemy with your gun. The clearing of the bulwarks alone in a turret-ship is a long and difficult process. I have not had much experience on these points, but I know this, that in the little "Enterprise" I had a short bit of turn-down bulwark, I think about 12 feet long, and in the "Research" there was a short bit of shifting bulwark of about the same length, and the trouble that was occasioned by getting this short piece of bulwark taken away in action, taught me a very important

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lesson, and made me most anxious, in all vessels I had to do with for the navy for the future, that I would have as little shifting and as little removable gear as possible. And it appears to me that as yet there is no way at all out of the difficulty, in the case of a ship circumstanced as this vessel would be, namely, with her whole armament in the form of a turret and no accessories. With regard to the sea-going qualities of this ship, I may mention that I have a very serious doubt whether a ship which is 10 feet high out of the water, with her bulwarks down, which must be taken as the normal condition of this ship in the presence of an enemy in time of war, could make her high speed available in steaming against a head sea.

949. Do you allude to the safety of the vessel, or the safety of the men upon the deck?—In making that remark, I do not allude at all to the actual safety of the ship, because I think nothing but the grossest carelessness could make a ship of that sort unsafe from the wash of sea over her. But I am speaking of the probability of an officer in command of a ship like that, under any circumstances, attempting to drive her with a green sea coming over her, and sweeping her fore and aft. I have seen the Holyhead packets, and on one occasion made the return journey at about 14 knots, when one-half of the hurricane deck of that light ship was immersed in the green sea. I am speaking as a landsman on this subject; you gentlemen know better how such a vessel is likely to behave when making that speed. The "Pallas" is 19 ft. 6 in. from the top of the hammock nettings to the water forwards. She never turns her bulwarks down. I believe the lowness of this turret-ship above the water when in the presence of an enemy, and therefore with the bulwarks down, would deter the captain from attempting to make his speed available in bad weather.

950. From your experience of the ships that have returned from sea, have you reason to suppose that plates fitted on hinges in that way would stand an ordinary amount of forcing against a head sea?—I was speaking rather of the case of the ship with her bulwarks down.

951. Supposing they were turned up, that would give you five feet more protection; have you any reason to doubt, or do you suppose, that they would stand a head sea?—I should not like to take an objection to the ship on that ground, although I think it doubtful whether they would stand; that is a point that may be met by making them sufficiently strong to sustain it; but that, of course, would add to the difficulty of handling them; but in the case of the ship with bulwarks down in any sort of sea it seem to me, but here, again, I speak with great diffidence before the Committee, that it would be almost impossible for these bulwarks to remain there.

952. You think they would be washed away when down?—I think so, most certainly.

953. Captain *Kennedy.*] Do you think moveable bulwarks can be fitted to stand a gale?—I consider that moveable bulwarks cannot practically be made sufficiently strong to stand the shock of the sea; for I believe if they were so, they would be so heavy as to render them most objectionable to the officers and men in clearing for action. I would only say (as the Committee prefaced these questions by asking me if I was Chief Constructor of the Navy) that, according to my present feeling, I should consider that I performed my duty very badly if I proposed to fit any man-of-war whatever with turn-down bulwarks all round her, knowing the difficulties that do happen on board ships from the use of shifting fittings.

954. Admiral *Yelverton.*] What is your opinion of her steerage and stowage power, including the power of turning quickly?—I think there is no doubt she will be a handy ship, although I think her handiness may be improved by increasing the width of her after stern post. We pretty well know now that the presence of a tolerably broad stern post before the rudder, greatly improves the action of the rudder.

955. Looking at her generally, what do you think of her easiness in a sea-way: do you think she would be an easy or a heavy pitching vessel?—I think she would be a very easy vessel, her extremities being light, and her form good.

956. As regards her dryness, you cannot speak of that of course, because the state of the bulwarks would have something to do with that?—As regards dryness, I think she is much too low a ship for her dimensions and for her speed as a sea-going ship.

957. Looking at her generally, what do you think would be her power of carrying sail, would she be a stiff ship or a crank ship; she has no keel?—A stiff ship, although she is not to have any keel; the keel is serviceable for preventing a sudden gust careening the ship, but does not materially add to the permanent stiffness of a ship.

958. What do you think of her rolling, do you think she would require bilge pieces or not, to prevent her rolling?—I should recommend the use of them.

959. Do you think she would be a pitching ship?—She would not pitch uneasily, but on the contrary, somewhat easily.

960. As far as you know of the turret system, what do you think would be the power of fighting her guns in a sea-way?—Good, I should say, provided no difficulty was found in working the enormous guns with which it is proposed to arm her, under these circumstances.

961. Do you apprehend any difficulty as to the stowage of boats, spars, &c.?—Very great. My opinion is that the only practicable means of stowing boats out of the reach of the 600-pounder gun, would be found so cumbersome and troublesome as to lead sooner or later to the certain disapprobation of the naval service.

962. Will you state to the Committee why you apprehend that the stowage of the boats would lead to the disapprobation of the service?—Because I have found that in all vessels firing over portions of the deck, the boats, even when remote from the guns, are liable to considerable disturbance; and I doubt whether boats hanging by davits on the sides of the ship, would be secure when the ship was firing her guns.

963. *Chairman.*] Do you know who designed the proposed vessel of Captain Coles?—With reference to that point there is a little ambiguity in Captain Coles' letter, and I think it is only fair to myself, if the Committee will allow me, to explain in a few words, what passed upon that question, and I might perhaps be allowed to preface it by saying that the designs of the "Pallas" and the "Bellerophon" were prepared by me while I was a private individual, and not a servant of the Government, and were offered to the Government for their use, and accepted by the Admiralty. When the designing of a sea-going turret-ship by Captain Coles was under consideration,

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ration, I was asked by one of the Lords of the Admiralty, in the presence of some others, whether I would object to the designs of either of my vessels being furnished to Captain Coles, to assist him in preparing a design of this vessel, observing, that Captain Coles had previously stated that he was not a naval architect, and on that account was unwilling to design a ship solely himself; and I may say that the request, or the question which the Lords of the Admiralty put to me, was consequent upon my recommendation, after that declaration of Captain Coles, that he should be furnished with any designs of any ship in the navy he might think suitable, with a view of his accepting the bottom of the ship, with the engines, &c., unaltered, and placing upon that the top of his ship, suited to his purpose. Captain Coles agreed to that course, and I consented; stating that as far as I was concerned, he was welcome to the designs of any of my vessels he pleased. Captain Coles then selected the "Pallas." I pointed out to him that I considered the "Pallas" an unsuitable vessel for him to take upon that understanding, inasmuch as the "Pallas" was a wooden ship, and necessarily so because we had to build her at Woolwich dockyard, where we have not the means of building iron ships, and because the circumstance of her being of wood led to an extreme draught of water aft, a draught of water much exceeding what would have been necessary in an iron ship. Captain Coles still adhered to his opinion that the "Pallas" was the most suitable vessel. I was asked what ship I would recommend him to take. I said I should certainly recommend him the "Bellerophon," knowing very well that the difficulty of carrying two turrets in a ship of small dimensions was very great, especially when you wished to combine with the use of the turrets, a high speed. I recommended the "Bellerophon," and I stated at the time that she was certainly the best constructed vessel, so so far as the structure of her hull was concerned, that I had been concerned with, and had reason to believe she would be the fastest ship in the service among the vessels of my design. The selection of the "Bellerophon" was objected to, however, by Captain Coles, and the designs of the "Pallas" were sent to him at his own desire. I soon after had occasion to go abroad, and while I was absent the designs of the "Bellerophon" also were sent to Captain Coles; and, as your Lordship and the Committee are now aware, the understanding on which these designs were furnished to Captain Coles in the first instance, with my consent, has been departed from, inasmuch as neither the displacement nor the beam of the "Pallas" have been adhered to; but Captain Coles has (and I merely remark the fact without dwelling upon it), selected from my designs such portions as he thought suitable, and left such other portions as he thought unsuitable. I mention the fact for this reason, that when the "Pallas" was designed, there was nothing in our service analogous to her proportions. It was in the face of great prejudices in favour of great length, and in the face of much opposition, that I proposed to build a ship only 225 feet in length, to steam anything like 14 knots; and I wish to mention it further for this reason, that before the ship has been tried, the doubts about the possibility of such a vessel going at so high a speed are declining, and people are beginning to consider the speed of such vessels as the "Pallas" and "Bellerophon" as a matter of course. It is obvious, however, that we should not have seen such a design for a turret-ship as that now before us, had not the "Pallas" been designed and built previously.

964. Admiral *Yelverton.*] Do you think, from the appearance of the model, she would be an easy ship to ride at anchor?—I cannot offer an opinion upon that.

965. Have you considered the arrangement of the system of the tripod masts?—Yes.

966. Do you approve of it, or disapprove of it as applicable to this vessel, the model of which is now before you?—I think it is indispensable to the general design of the vessel, but not to the turret system, because I am disposed to think that what would be preferable to a tripod mast, would be a mast more on the principle of a column with an extended base, so that the supports of the mast should be within it; and the base of the mast on the deck should be of a considerable size, so as to furnish accommodation either for the shelter of men, or for the stowage of stores.

967. Do you consider that these tripod sheers would be sufficiently strong to support the mast under all the circumstances of the press of sail, rolling, pitching, and so on?—I am not prepared to say that the actual arrangement of Captain Coles as proposed for this vessel would be sufficient, but I can see no reason whatever why a combination of central masts, with two diagonal supports arranged as he proposes, should not be made so.

968. Do you think, if the mast was shot away a short distance above the deck, the sheers would have the power of supporting the weight of the mast?—No, certainly not.

969. Suppose there was a guy put up at the back of those sheers, do you think they would support the mast?—Not if there was any motion in the ship. I think the diagonal struts would be most disadvantageously circumstanced for supporting anything like a pitching motion of the ship.

970. Then do you consider this tripod rigging advantageous for action in a turret-ship?—To the extent of a trial in an experimental vessel.

971. You think the system ought to be tried? —I think if the ship is built the tripod mast ought to be a part of it, but I last week inspected the "Wyvern" turret-ship at the Birkenhead float, which ship is fitted with tripod masts, and I observed what must be obvious to every one, namely, that owing to the inclination of the legs the range of the guns was most seriously interfered with.

972. Do you see any objection as to carrying sail on the tripod system?—I think not, if the masts and fittings are well arranged, as they would be in Her Majesty's service.

[The Witness withdrew.
Adjourned.

Admiralty, Thursday, 25 *May* 1865.

PRESENT:

Vice Admiral the Earl of LAUDERDALE, in the Chair.

Rear Admiral Yelverton.
Captain Caldwell.
Captain J. J. Kennedy.
Captain H. B. Phillimore.

E. J. REED, Esq., called in; and further Examined.

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973. *Chairman.*] IN Captain Coles' letter stating the particulars of his proposed ship, I think he mentions the amount of canvas she is to carry to be 26,620 square feet, which is more than that of the "Pallas"; do you think that the turret-ship, with that proportion of sail, will have more stability or less than the "Pallas"?—I believe the estimate of area stated by Captain Coles to be exact, provided you include all the sails which he shows; but it requires a considerable reduction when those sails are excluded which always are excluded from the estimate of area in Her Majesty's ships; the amount of the reduction that requires to be made I am not at this moment prepared to state.

974. We believe that Captain Coles, in his estimate, includes the fore and aft sails; are such included in the calculation made by the Admiralty?—Only the jib and driver.

975. And the square sails?—And the square sails.

976. As to the stability of the proposed vessel, supposing it to be rigged as proposed, and with the amount of sail shown in the drawing, have you any reason to suppose there would be a want of the necessary stability, or that she would not have the same stability as the "Pallas," or any other vessel of similar displacement?—I consider the turret-ship would have sufficient stability for her rig, but I should not like to institute a comparison between her and the "Pallas," with reference to her sail power, without stating what are the facts in connection with the rig of the "Pallas," which make her sails what they are.

977. Admiral *Yelverton.*] Does the usual calculation, applicable to all Admiralty ships, apply to the "Pallas"?—Yes; to the official statement of the "Pallas's" area of sail.

978. Do you believe that the "Pallas" is capable of carrying the same amount of canvas as the proposed turret-ship?—Undoubtedly; the reason for the spread of canvas having been kept down in the "Pallas" was, that she was built primarily for fleetness, and I was averse to giving her a squarer rig than was absolutely necessary, in order that I should not take off from the superior speed which she was expected to have, by adding to the resistance in the air, in driving her upon emergencies. The canvas of the "Pallas" was made subordinate to her steam-power, in order that the efficiency of the ship in pursuing privateers and other like vessels might not be too much interfered with.

979. *Chairman.*] Do you think these iron topsides, as they may be liable to rust, would be apt to get set fast, and not turn down without breaking them or blowing them away?—I presume if this vessel were built, it would be the duty of the captain to see that special attention was given to the efficiency of those arrangements in this vessel; but whatever amount of attention might be given to them, I believe they would be found to cause great trouble in clearing for action, and altogether preclude that smartness which is so desirable in the navy.

980. Will you be so good as to state what difficulty there would be in turning down the bulwarks, and clearing the upper deck for action?—So far as my experience extends, great difficulty is frequently incurred in knocking out forelocks, heaving back screws, shifting stanchions, shipping and unshipping levers, and other operations of that kind, which would be essential to the lowering of the turret-vessel's bulwarks, and I have seen no reports from the existing turret-ships, tending to show that these difficulties are not individually as great in these vessels as in all others, while in extent they are, of course, out of all proportion greater. Further, in my opinion, these bulwarks cannot be allowed to stand to the extent proposed in the design, when the guns are trained aft, as, I believe the concussion from the explosion would blow them away.

981. Have you any other remark to make as to the difficulty of clearing the ship for action?—As this ship was designed by a naval officer, I am indisposed to assume that he would have gone very far wrong in that respect; but I cannot help saying, that I believe the explosion of these guns over the deck, would render it necessary to adopt very strong hatch-covers, fastened down in a very secure manner with heavy fastenings, the fittings of which would, of course, add to the time and labour necessary for preparing the ship for action. With regard to the proposed method of stowing the yards and topmasts when the ship goes into action, it appears to me we must expect they would, or might at any rate, be very speedily brought down on the deck, and then, owing to the concentration of the guns at one spot, would, for the time being, put the ship virtually *hors de combat,* by preventing the guns being brought on your enemy.

982. Will you look at the drawing with regard to the accommodation for the crew; supposing her to have the same number of men as the "Pallas," what is the accommodation?—When out of action, the accommodation, as far as cabins and mess places for the seamen are concerned, is very good; but in so far as the protection of the watch is concerned, it is exceedingly bad.

983. On deck do you mean?—Yes; in most of the smaller vessels of the navy, we have now a general order to fit a forecastle for the shelter of the watch from bad weather, and in the "Pallas" we have kept the fore-deck below the forecastle exclusively for that purpose; but in this vessel there is absolutely no protection for the watch that

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that I see at present, and the watch could not retreat to the fore-deck below, inasmuch as it is the mess-place and sleeping-place for the men; and although I make no doubt that a vessel of this description would go through all her early trials without any great fault being found with these arrangements, I have not the smallest doubt that if this ship were to be built, and others of a like nature were to follow, and vessels of the navy were to be made of this type, the greatest possible complaint would be made, and very justly made, on the part of the officers and men, of the want of regard to the health and comfort of the crew on ordinary service. With regard to the accommodation of the men in action, there is a defect in this new vessel which seems to me to be extremely important. In the "Pallas" the lower deck of the ship is protected with armour, and there is not the slightest necessity for any one to be in the unplated portion of the ship during a fight; but in the turret-vessel there is no place for those who are not fighting, except the protected space around the turret, which I apprehend would be required for the service of the men in working the turret. What is to become of the men and officers at that time I do not know.

984. Captain *Kennedy*.] Would there be any great difference of safety for the men behind a 4½-inch plate and a good wooden side, contending with ships with large guns, say 6½-ton guns?—I think in a high speed handy vessel 4½-inch armour would be a protection against very many of the shots which might strike the ship; but it is to be remarked that, in my opinion, a vessel may be designed on the general arrangement of the "Pallas," and carry armour quite equal to that of the turret-ship, and therefore it is quite possible to give the men in a broadside ship the same protection which even the water-line of the turret-ship possesses. The defect which I have mentioned is a defect which attaches to the principles of the turret system, and which does not belong to the broadside system.

985. Do you mean to say that a vessel of the same tonnage could carry 6-inch iron?—Yes, I mean to say you could build a vessel of the same tonnage as this ship that would carry the same number of guns as the "Pallas," and be protected by 6-inch armour. It is precisely this interference with the use of forecastles and poops, protected spaces between decks, and other forms of accomodation in ships, which results from the attempt to get an all round fire from the centre of a ship, that has created from the first the chief obstacles that have stood in the way of sea-going turret-vessels, and in my opinion no sea-going turret-ship of moderate dimensions, and of high speed, could be satisfactorily built, if an attempt was made to preserve even a near approach to that all round fire.

986. *Chairman*.] From what you have stated do you consider that with the same weight of material as is used in the armour plating of the proposed turret-ship, and in constructing the movable turret and its machinery, there is any other mode of arrangement which would afford equal or greater powers of attack and defence?—I believe that a ship may be designed with the same displacement, midship section, and steam-power, as Captain Coles has proposed, to secure a greater range of fire, including what this vessel does not possess, namely, a direct head-fire and a direct fire astern, and also an equal broadside fire with that vessel, together with greatly improved sea-going qualities, and the almost total absence of shifting fittings like these turn-down bulwarks; also an increased height of the protecting belt above the water.

987. Admiral *Yelverton*.] Not a turret-ship, I suppose?—No; the same outline of arrangements being preserved as in the "Pallas," with modifications from that design, which would be made practicable by building the ship of iron, whereas the "Pallas" is built of wood.

988. Do you think that the "Pallas," or a ship of the same tonnage as the proposed ship, and built of iron also, could carry four 12-ton guns on the principle that they are carried in the "Pallas"?—Most undoubtedly.

989. Could the "Pallas" carry four 12-ton guns?—Perfectly; the gun-deck has been made strong on purpose to receive them if their Lordships should decide on placing them there; but while answering this question I should like to be allowed to state that great difficulty is placed in the way of the designers and advocates of broadside vessels, in consequence of the extremely unsatisfactory state of the existing arrangements for working heavy guns at the broadside. In my opinion, if one-tenth part of the trouble that has been taken to work a 12-ton gun when associated with a 150-ton turret, had been given to the working of the 12-ton gun without the turret, we should at this moment have been in a much better position for dealing with this great question. The Committee are undoubtedly aware that although the War Department is, to a certain extent, charged with the provision of the means for working broadside guns in ships, and although the "Excellent" also serves as a means of improving facilities in that respect; still, so far as I know, it is nobody's business at the present moment to train and work large guns at the broadside of ships in the only way in which, in my opinion, they can be effectually trained and worked, namely, by commanding machinery; by which I mean machinery that will as effectually control a 12-ton, or even a 20-ton gun, as the existing means will control a 68 or even a 32-pounder. The Committee will observe that in the turret-vessels belonging to Her Majesty's service, novelties of a considerable and of a costly nature have been freely introduced to facilitate the working of the guns with the turret; but, for my own part, I know of no vessel in the service which illustrates any attempt whatever to work a 300-pounder, or any other such gun, by machinery, or by any other means than certain detailed modifications of the old mode of working by tackles. In order to make the project of arming the "Bellerophon" with 12-ton guns a practicable one, I have myself undertaken to provide the mechanical means of training these guns at the broadside ports; but, of course, the machinery for working such guns ought not to be confined to training only, and, in my opinion, it is not the duty, under existing circumstances, of the constructors of the navy to devise appliances of that sort; but most certainly there are no other mechanical appliances at present under trial for working the guns at the ports of the "Bellerophon" than an arrangement of my own, which will be fixed in the course of a few weeks. I am clearly of opinion, and there is no reason why I should not state it to this Committee, that the time is rapidly coming, if not already come, when a department will have to be established in connection with the Admiralty itself, for considering and

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and carrying out proper means of working large guns in ships.

990. Supposing it to be quite possible to work the guns by mechanical means, have you considered, or can you explain, by what means you would insure the safety and security of carrying the guns on the broadside, in a sea-way and bad weather?—If this question amounts to an intimation that I should state the details of the machinery which I would employ, I am not prepared to say more than that I believe it would be easy to design many systems of machinery which should render the casting loose of the gun under any circumstances absolutely unnecessary, but which should nevertheless provide for the recoil of the gun with all necessary freedom when discharged. The absence of such machinery is the very thing I complain of. I know nothing in the principles of mechanism to make the working of a gun at a ship's side an impracticable problem; and I know of nothing in the turret system which enables you to prevent giving your gun the necessary freedom for its recoil, and I apprehend there is no other circumstance in connection with the working of the gun, which renders it necessary that the gun should be set free; on the contrary, my opinion is, that the proper way to solve the problem will be, to consider how a gun of the very largest class might be effectually controlled, and then to work down to the smaller guns, reducing your machinery as might be necessary. But the problem hitherto has been, in my opinion, somewhat unsatisfactorily handled, even by Commander Scott, whose experiments I regret I omitted to refer to in my last answer, because he seems to me to be working up from a smaller gun to a somewhat larger one, instead of dealing broadly with the large question of a gun of the largest class, effectually solving it, and then working down from it. I certainly am not prepared to say, that I have considered the means of effectually accomplishing this object, as regards any other part of the working of the gun than the training. I do not see what is to hinder you from surrounding the gun with a frame which should bear on both the deck below and the deck above, in such manner as to render the upsetting of the gun absolutely impossible. The elevation and depression may be got by a second frame working within it.

991. Admiral *Yelverton.*] Have you considered in this plan of securing the guns, the chance of shot and shell, and the danger to which the machinery would be exposed from fragments?—I have considered that question, and wish to say, that I think whatever risk exists of the machinery of a gun becoming disabled at a broadside port, is increased in the turret system, inasmuch as, taking the very vessel before the Committee as an illustration, you have the whole of your guns, only two in number, concentrated in one place, with the ports brought as close together as it is possible to bring them, the precise position of these ports being marked out, not only as other ports are marked out, namely, by their own visibility, in the case of an enemy being near you, but generally and broadly defined as accurately and distinctly as an enemy could wish to have them defined, by the up-standing turret, in the centre of which the machinery of your guns is assailable. It seems to me, that a remark made some time ago by an officer of the navy alongside of a turret vessel, had much force in it. He said, that even in the case of a ship with more than one turret, he should not hesitate to attack her with an ordinary wooden vessel with shell guns, provided he had a fair speed, inasmuch as he should tell a certain number of shell guns off at each turret, aim at the centre, and carefully observe when the turret was turned towards him, to discharge a certain number of his guns at it; and he believed the chances of getting shell within the turrets would be great. In this turret-ship, if so attacked, all the enemy's fire would be drawn to the one spot, for there is absolutely no other gun to distract the enemy. Your fire in working these guns is concentrated, much more than it would be if the vessel were constructed on the broadside principle. I also believe it would be quite impossible to receive the blows of large guns upon the turret, without running a very serious risk indeed of compromising the efficiency of the mechanical arrangement inside.

992. You mean the blows would crack the iron work?—One seldom sees a heavy shot fired at any sort of target now, without finding some considerable derangement behind it.

993. *Chairman.*] Are the boilers and the machinery in the proposed vessel less protected than they would be in the ordinary broadside sea-going vessels of similar size?—Much less; in the case of the "Pallas" the armour rises to the main deck; and in the case of the "Penelope," another vessel designed to carry similar armour to the turret-vessel, I made, in conference with the Controller, express provision for extending the box portion of the ship, as it is sometimes called, along the lower deck, beyond the limit of it on the main deck, in order to enable the funnel to be placed within its protection. In the case of those small, one might almost call them "miniature" vessels, the "Enterprise" and "Research," an arrangement similar to this of the turret-ship has been adopted, the funnels having been removed from within the battery, and exposed in a somewhat similar manner to that in which this funnel is exposed; but my own feeling was always against that course, and I believe that the difficulty in working the guns would, with practice, have greatly diminished, if it had not altogether disappeared. It is only fair to add, however, that in the "Research," which is, roughly speaking, of 1,200 tons, the armour in wake of the funnel is more than twice the height of this 2,400-ton ship's above the water. However, I certainly think that these vessels are much more exposed to injury in action than they were before; and in the case of a vessel of the magnitude of the turret-ship, I think it is obvious, if this vessel were at all near to an enemy, there would be nothing, absolutely nothing (except a thin plating, of which a heavy shot or shell would make no account), to prevent shot or shell going down the aperture in the deck made by the uptake, which you cannot possibly close, and exploding the boilers. I should myself be most reluctant to incur that liability in any ship approaching to the dimensions of this vessel, or, indeed, in any ship whatever, unless it was absolutely forced upon one by circumstances. And looking to the efficiency of this vessel, I should consider it a great improvement, even at the sacrifice of some portion of her speed, to provide an increased amount of protection for the funnel or up-take; in other words, to carry the armour plating around the boilers to a greater height, as a security against the enemy's fire. I may mention, in connection with this, that Captain Coles

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Coles has introduced an armour-deck of, I think, an inch in thickness, which will add somewhat to the security of this vessel below; and, in a vessel that is building for the Italian government at Millwall, the "Affondatore," a 2-inch deck has been placed in a somewhat similar position. In the latter vessel provision has been made to stop the course of shot and shell through the hatches, which are obviously a source of great weakness, by placing edge-bars across them. I have not seen any mention of similar arrangements by Captain Coles, nor have I seen any provision in the weights for them; but, at best, it seems to me to be always a very doubtful thing to limit the protection of the funnel, up-take, and boilers, to an armour-plating rising only a foot or 18 inches above the water-line, because there must always be great danger in having so large a hole as the funnel makes through the deck exactly over the boilers themselves.

994. Admiral *Yelverton.*] Do you believe that the 1-inch iron deck will have the power of deflecting a shot?—It would be very valuable beyond all question, as it would give the ship a great many more chances; but to what extent I cannot precisely say.

995. *Chairman.*] Will you examine the arrangements in the plan, for the provision of water, stores, and coals?—After a cursory examination of the plans, I beg to state that I can see no reason for doubting that the arrangements in those respects are quite satisfactory.

996. Have you considered carefully the turret system, with regard to its advantages and disadvantages in a sea-going ship?—Yes, and there is a curious feature in connection with the use of turrets in sea-going ships. I am of opinion that the reverse arrangement should be adopted in a small ship to that which is available in a large ship. I think, for instance, in a large ship, say of about 4,000 tons, it is quite likely that a pivot gun might be placed at each end of the vessel on a turntable, and plated partially (for it would be difficult to find the necessary weight for a complete turret) with armour, and perhaps having the turret completed with bullet-proof iron. The gun, so protected, should be made to range from one broadside to the other round the bows forward, and from one broadside to the other round the stern aft. In adopting this plan, I should propose to place no turn-down bulwarks or other such troublesome devices before the foremost turret, or abaft the aftermost one, or at any rate only such as I found to be absolutely indispensable. It would not be possible to make these guns absolutely secure, assuming that your ship is to be of great height, as she ought to be, out of the water, and to be a high-speed vessel, because the protection of the between-deck space from the turret above to the water-line, would involve the use of too large an amount of armour; but I think guns so arranged would, to a very large extent indeed, meet what I apprehend is a want felt by the service, and particularly in our iron-clad ships with central batteries, like the "Warrior" and "Defence," namely, the power of bringing the guns to bear from within the protection of the armour, all round the extremities of the vessel. This arrangement I should propose to associate with a central battery. In the case of a smaller ship, say a ship of about 2,000 tons, my opinion is that the most promising mode of employing a turret would be to content oneself with a limited range of fire on the broadside, not nearly so limited, of course, as the fire obtainable from a fixed port, and then to complete the offensive power of the ship by a shield on the bow, and another on the stern, which shield would form in the one case the front of a forecastle, which would tend greatly to improve her sea-going qualities; and in the other case, would form the after part of the poop or closed deck, as the case might be, also affording accommodation. So that, it would appear to my mind that while in a large ship the extremities are the best places for the turrets or partial turrets, in a small ship the extremities are the best places for fixed armour, and the centre of the ship the best place for the turret.

997. With regard to your idea or proposal of placing turrets in the extremities of the vessel, are you aware that it is the opinion of many naval officers that no armour-plated ship can be made an efficient sea-going ship with great weights, such as turrets or very heavy guns, in her extremities?—I think that while it would be most objectionable to burden the extreme ends of a ship with a very great weight, the fact of your limiting the armour, as I should propose to limit it, to the water-line at the extremities, crossing the ship there with a perfect shot-proof deck; and the proposal which I should also make to carry this partial turret somewhat in on the bow, and somewhat in on the stern also; I say, I am of opinion that, with those arrangements, we might produce a vessel the extremities of which would be much less burdened than many of the existing ships, of which complaints are now made. In addition to that, I should propose to associate such weights as I did place in the form of partial turrets near the extremities, with an increased height of ship at those parts, thereby tending to remove what I cannot help feeling is one of the sources of the objection to the heavy ends of the ship, namely, the comparative lowness of the ship above the water. The Committee are, of course, aware that if you take one of the completely plated wooden frigates without her forecastle or poop, you take a vessel circumstanced very much as a line-of-battle ship would be, if you cut her off a little above the main deck, and still kept all the weights on board. In a line-of-battle ship you close her ports in bad weather, and so practicably add another 10 feet to the bottom, while, in the case of iron-clad frigates, you get the sea over everything, when it would scarcely reach the forecastle of an ordinary line-of-battle ship; and I think that holds, not only with regard to the pitching, but also with regard to the rolling of the ship; and I doubt whether the accounts one hears of the excessive rolling is not more due to the extreme lowness of the ship than to the extreme character of the angles which she passes through.

998. Supposing that, to ensure the same power of resistance, it was necessary that two vessels should be plated exactly alike, would it be possible to carry such heavy guns as these, weighing 22 tons, in the extremities, or within say one-fourth of the length of the ship from each end, to make them efficient sea-going vessels?—Touching upon this question, it may be well for me to give the Committee an illustration showing how small the weight of even a large gun at the bow is in comparison with the weight of the bow itself. In the case of the "Warrior," as the Committee know, there is no armour, except over 212 feet of the midship portion, the ship being 380 feet long

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between the perpendiculars. I have ascertained by calculation that the weight of the first 50 feet from forwards of the "Warrior's" bow, is exactly equal to the displacement of the first 50 feet; but taking a ship armour-plated to the extremities like the "Minotaur," in which bow shields are added to a complete armour plating up to the main deck round the bows, I find there that the weight exceeds the displacement in the first 50 feet by some hundreds of tons. But, by altering the form of the bows, as in the case of the "Bellerophon," we have been able to plate up, not only to the main deck, but to the upper deck, and to place armour on the bows to a sufficient extent to protect two chase guns capable of being fired also from behind armour on the broadside, and so defending the bows entirely round from broadside to broadside, and still we have not burdened this vessel any more than the "Warrior"; for I find that the first 50 feet of the "Bellerophon" has displacement enough to exactly support its weight. I mention these circumstances, because they go to show that the construction of a ship must be made dependent very much upon the object one has to accomplish, and that it is not quite possible to deal with the subject in the abstract only. Certainly, provision may be made for carrying heavy guns at the bow in bows of the new form, without burdening the ship so much as the weight of the bow itself has heretofore burdened it.

999. Supposing the "Achilles" to have proved herself a good sea-boat, a lively ship in a sea, do you think that if you were to put any great weight in her extremities, or near her extremities, she would be anything like the same sea-boat that she is now?—I think there can be no question that the lines of the "Achilles" might be modified to such an extent as to allow her to carry heavy bow guns, without impairing her sea-going qualities; and I may mention here, that I am disposed to think that the presumed excellence of the "Achilles," up to this moment, has arisen more from one circumstance than any other, namely, the great height of her centre of gravity. She has less stability than many other vessels she is compared with. Her easiness in a sea-way is a very favourable quality, and I hope and believe that this quality is associated with ample stability for carrying sail.

1000. Does her stability affect her easiness against a head-sea?—I think it affects her qualities altogether. The same consideration would hold with regard to the longitudinal stability of the ship, as with regard to her transverse stability.

1001. You say you think her lines could be altered so as to enable her to carry very heavy guns?—Yes, if she were being designed anew.

1002. Would she, at the same time, carry a comparative weight of armament with the other ships, and yet possess the good qualities that she has now?—I should not myself propose to add anything to the actual armament of the "Achilles," inasmuch as her total weights now are as great as she was designed to bear, and her speed would necessarily be reduced if further weights were added to her. At the same time, if the Admiralty were prepared to sacrifice a small amount of speed, and of course a certain amount of height, for the sake of increased offensive power, there would probably be no great objection in the qualities of the ship herself to that course being taken.

1003. Captain *Caldwell.*] Have we any vessels at present of about equal tonnage to the proposed turret-ship, that can compete with or engage this vessel on equal terms, or even if armed only with two 300-pounders instead of two 600-pounders?—Our iron-clad vessels are for the most part of greater tonnage. In answering the question, however, it is necessary for me to remind the Committee that until the design of the "Enterprise" was proposed, it had been deemed impracticable to produce sea-going armour-plated ships of much less dimensions than the 4,000-ton ships, if anything like a sufficient degree of protection was to be secured. Since that period there has been no attempt to build an armour-plated sea-going ship in this country of about the dimensions of 2,300 tons, except the "Pallas," because the "Favourite" is a converted vessel, already partly built before she was taken in hand as an armour-plated ship, and fitted with engines of no great power. In the case of the "Pallas," she was designed and built expressly for particular and not general service, and under circumstances which forbade the resort to the lightened construction which was originated in the "Bellerophon," and has been adopted in the turret-ship. I doubt, therefore, if there is any vessel of the same tonnage which would consider herself sufficiently defended to attack the turret-vessel at close quarters; at the same time, considering the concentration of this ship's armament, and the liability to injury which I believe is associated with that, I think it not at all impossible that the "Pallas," with her superior speed and with the measure of armour-plating which she possesses, extending to her main deck, might hope to compete with this vessel at sea; but, however this may be, it would be injudicious on my part to answer the question unhesitatingly in the affirmative. Nor do I think it will ever be possible to deal with a question of this nature satisfactorily at a time of such transition as the present, and under circumstances like these, inasmuch as whatever ship may be built, it is quite reasonable to expect that her design may be made the basis of an improved one after the lapse of two years or more, that being the time which has elapsed since the "Pallas" was designed, and Captain Coles having had the designs of both the "Pallas" and the "Bellerophon" to work upon. At the same time, it should be borne in mind, I think, that the reduction in speed of at least half a knot in the turret-ship, and the lowness of her upper deck, which would render her unsuitable to be driven at speed in pursuing an enemy, would present the designers of other countries with ready opportunities of designing, and the governments of other countries with ready opportunities of building ships of a more formidable nature than herself, but of no larger dimensions.

1004. From this answer I think we may gather, at any rate, that her armament is of a very formidable nature?—That is assuming that the turret proposed by Captain Coles will carry two 600-pounders. Assuming her guns to be 300-pounders, I have already put in evidence my opinion that with the improvements furnished to Captain Coles and adopted by him, a more formidable vessel may now be designed, on the tonnage of his ship.

1005. As it appears to me, your main objections to the proposed ship are more dependent upon the difficulty of adopting the fittings of the upper deck to the general convenience of a sea-going ship than to her armament, do you see any decided objection to such a vessel being constructed for

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special purposes, and not as an ordinary cruiser? —This question touches the funds at the disposal of the Admiralty for the construction of ships of war. My own feeling has always been that it is very desirable that the best sea-going turret-ship which can be produced should be produced, and sent to sea for some months, and reported upon for the guidance of their Lordships and others; and I should be exceedingly glad if this design of Captain Coles could be made the occasion of getting such a vessel built and sent to sea. But it is necessary to point out that there are great difficulties in the way, and that this vessel is herself an embodiment of the strongest objections which have been taken by myself and others to the practicability of constructing satisfactory sea-going turret-ships. We have always said that the principle involved an extreme limitation of the number of guns, whereas the advocates of the principle have represented in many ways that several turrets, or, to say the least, two, might be carried in vessels of even less dimensions than this. I feel great difficulty in giving an opinion as to the desirability of building this ship, because, as I have pointed out, there are very serious defects in her design, such as the exposure of the up-take and boilers, which I think ought to be avoided in any ship of her dimensions; but, on the other hand, it can hardly be doubted that whatever the merits or defects of the vessel may be, the thorough trial of such a vessel on sea-service would tend considerably to the settlement of the difference of opinion that exists on the adaptability of the turret system to sea-going purposes.

1006. *Chairman.*] With reference to your last answer, when you mention "we" in the advocates for the system, do you allude to other naval architects?—There are many gentlemen who are of opinion that turret-vessels are not advisable for sea-going purposes, and they include both naval architects and naval officers.

1007. Are naval architects in general, to your knowledge, divided in their opinions on the superior advantage of the moveable turret system, particularly for a sea-going ship, not only in this country but in foreign countries?—I think the opinions of naval architects, as to the value of ships for sea-going and fighting purposes, are quite subordinate to the opinions of naval officers. The authority of the naval architect comes in, I apprehend, in stating what qualities are, and what qualities are not, procurable in a ship.

1008. We will not trouble you, then, about the naval officers. I put the question simply to know whether, in your opinion, there is a great difference of opinion upon this important subject, among the designers and constructors of ships?—There undoubtedly is a great difference of opinion upon the subject, but I am not aware that the navy of any country in the world, whether built by its own architects, or by private architects of this country or any other, exhibit any great preference whatever for turret-ships, inasmuch as I do not know of any sea-going turret-ships possessed by any other nation.

1009. Then we are to understand that you think so important a question ought not to be left to a matter of opinion?—I think the course pursued by the Admiralty is almost the only wise course; namely, to consider actual designs when they are submitted, and if they have any doubt in deciding on the desirability, or otherwise, of building them, to take, as they have taken, the advice of a committee of naval officers as to the course to be pursued. I mean, I attach no value whatever to the statements of naval architects, all the time they remain as mere statements; but I should attach great importance to any design produced by a naval architect, and should give it the same careful investigation as that of Captain Coles.

1010. Do you think the question is so important, in consequence of the difference of opinion on the subject, both on the part of naval architects and naval officers, that it would be very desirable to set the matter at rest by a fair trial?—My own opinion is, that the Admiralty already have the means of giving a fair trial to all the doubtful points of this design in the vessels which they already possess, and that it is extremely undesirable for a public department, in a country like this, to evade the responsibility which belongs to it in deciding a question of this sort by expending large sums of the public money on so-called experiments, unless they haye reason to believe that great and decided advantage would result from that expenditure. I believe that the principal points in doubt in connection with this vessel, such as the difficulty of clearing for action, the accommodation, and other matters of that kind, are either questions which require no experiments, or which may be experimented upon in the "Scorpion," "Royal Sovereign," and other vessels which we now possess.

1011. One of the most material points of the question before us are the sea-going qualities of the proposed ship; have the Admiralty at present the means of testing those qualities without fitting or building some vessel on the proposed plan with turrets?—My own opinion is, that the reports of Admiral Dacres and other officers are sufficient to throw enough light upon that question to enable the Admiralty to come to a decision without incurring the cost of this ship for the mere experiment; on the other hand, it depends upon naval officers more than the naval architect, to say whether the ship does not contain sufficiently promising features of offence to justify the construction of such a ship, not as an experimental solution of minor points, but as a real and valuable addition to the naval power of the country. I should not be disposed to build it for the purpose of ascertaining whether shelter for the crew and protection for the boilers, are or are not desirable; nor do I think it necessary to spend 150,000 *l.* to ascertain if you can satisfactorily turn down the bulwarks of a full-rigged sea-going ship, or if so large a ship as this ought to be within 10 feet of the water; but if my mind were made up in favour of the ship on all these points, then I might, if I were the Admiralty, build her under the advice of such a Committee as this, as an addition to our naval power. Of course, it may be said, that any vessel that was built for trial purposes, if she did not answer as a sea-going vessel, would no doubt make a harbour defence vessel, particularly if the weights that are necessary for her as a sea-going vessel were taken out and added to her armour plates. On that point, however, I am afraid that the necessity of the navy, at this moment, is an increase in her sea-going ships, and not an increase in her coast defence vessels.

1012. Admiral *Yelverton.*] Are you prepared to make any suggestions or modifications of the plan before you, which may render the ship a serviceable sea-going man-of-war, always consistent with her being a turret-ship, of course?—I am

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I am not, at this moment, prepared to make any such suggestion, because the position I occupy, with regard to the turret system, is a peculiar one. My opinion is, that the legitimate and best course would have been for the Admiralty to employ its own designers to design the turret-ship, in connection with Captain Coles; that, I know, was the wish of the Admiralty, and it was the understanding with me that that should be so some time ago; but, instead of that, the contrary course has been taken; and while I should be most willing to contribute in any way to the efficiency of any ship that the Admiralty might build, I have to regard, on the other hand, the probable consequences of offering suggestions and changes. I mention that, because in Captain Coles' letter, there is, it appears to me, a disposition on his part to retreat already from the actual responsibility for this ship if she were built, and a thrusting forward of Mr. Scullard, who is but the draughtsman of the design, into too great prominence; and I am averse myself to taking any steps whatever in connection with any vessel in which Captain Coles is concerned, unless the relative responsibilities of myself and Captain Coles are perfectly and clearly defined. I should be afraid, in a matter of this sort, to make any modifications, unless that understanding were clearly come to first, lest I should be made responsible for any short-comings in the vessel, and should in this case, as in many others, have to submit to misrepresentation, owing to the reticence which is always enforced upon official persons.

1013. Captain *Kennedy.*] Will you give the Committee the training of the guns of the "Pallas," and also what her armament was to be?—The proposed armament of the "Pallas" is four 6½-ton guns in a central battery, and I think a similar gun under the forecastle. either that or a 110-pounder Armstrong; those five guns are protected by armour. There will be an additional gun aft to fire right astern unprotected. The ship is built of sufficient strength to receive an armament of 300-pounder guns, and I believe it will be found that she will have a surplus buoyancy to carry them at her intended load line; but I am myself averse to these guns being placed on board her, until proper means of working them have been devised. The battery guns train 30 degrees each way at the broadside ports, and between 15 and 45 degrees from the line of keel at the bulkhead ports. The bow gun trains from right ahead to 10 degrees on either side of line of keel when at central port, and from 45 degrees to right abeam when at broadside port. The after gun trains from fore and aft fire to 60 degrees from line of keel when at stern port, and from 10 degrees before to 50 degrees abaft the beam at the broadside port. The ship is expected to turn very quickly under the action of the helm, and thus more than compensate for the small angle of impunity on the bow, viz., 5 degrees.

1014. Are you aware that it requires spaces of 20 feet between the ports to work 12-ton guns, according to the "Excellent" rule, the "Pallas" being only 16?—I am unaware that such a distance is required, and if it is so required by the officers of the "Excellent," the fact only tends to show more fully than ever, the extreme necessity for an improvement in this respect.

1015. *Chairman.*] In the mode of working them?—Undoubtedly so; moreover, I should like to be informed whether the distance of 20 feet is not rendered necessary by the supposition that the guns are to be extreme trained in opposite directions.

1016. Twenty feet would certainly be necessary?—But then I cannot understand why the two guns of a broadside ship should require the power of extreme training in opposite directions, when the two guns of the turret ship have absolutely no independent training whatever.

1017. Then how would you fight two small ships, one on the bow and the other on the quarter?—I should give the ship helm, and bring the bow-gun into action, and the broadside gun out of the aftermost port also into action.

1018. Are you aware of the immense difficulty there would be in moving a 12-ton gun from one port to another in a sea-way?—There ought to be no difficulty whatever, inasmuch as I believe it quite practicable to make the same machinery that turns the gun transport it from port to port, by continuing the motion of the training gear.

1019. Will you furnish the Committee with a statement of the dimensions and weight of the "Pallas"?—I beg to hand the Committee a statement, and to observe that I do not think this should be used, except by the Committee for their own purposes.

1020. Captain *Phillimore.*] Do you consider the ship proposed by Captain Coles could carry two turrets?—Certainly not.

1021. Do you think the weight of the hull of the ship, which is estimated at 1,850 tons, is heavier than necessary?—It is certainly not heavier than the usual scantlings of the service would require.

1022. Do you know of any disadvantages that the tripod system of masts is likely to afford to men-of-war?—I think it would involve many departures from the system of working the ship practised in the navy, and understood by our seamen; but I should think that any difficulty of this nature may be overcome by practice and experience.

1023. How high above the load water-line do you think a 12-ton gun ought to be mounted in a sea-going ship, measuring from the lower port sill to the water-line?—I think the height of port should vary with the size of the ship; and in a ship of the dimensions of the turret-vessel, I think it should be at least 8 feet or 8 feet 6 above the water for a ship designed for general ocean service, if mounted on the broadside.

1024. Do you think that guns of 12-ton weight and upwards could be better fought on the broadside than in a turret?—I think so, especially in a close action, or in a long-continued action.

1025. Do you see anything objectionable in the construction of the double bottoms in the proposed ship?—Captain Coles has made a very serious alteration in the construction of the double bottom of the ship; while preserving the general arrangement of the "Bellerophon's" bottom, the inner plating has been lifted off the frames of the ship, and placed as a flat immediately underneath the boilers. Such a change is altogether inconsistent with the design of the "Bellerophon's" bottom, the riveted connection of the frames with the inner plating being a part of the essential principle of the new system of construction.

1026. Do you know of any other disadvantages of the turret system in a sea-going ship, than what you

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you have already mentioned?—No others occur to me at the present moment. In making these remarks, however, it should be observed that I understand by "turret system" in this question, not alone the plan of Captain Coles, of passing the turret through the deck, inasmuch as I am of opinion that that plan is a most disadvantageous one under many circumstances.

1027. *Chairman.*] Is the difference in tonnage between the "Pallas" and the proposed ship, in any great measure dependent upon the one being wood and the other iron?—The calculations of tonnage in the case of Captain Coles' designs, and his comparisons with the "Pallas," are not accurate. The tonnage of the "Pallas" is 2,372 tons; the correct tonnage of the turret-ship, as an iron ship, is 2,476 tons, and the tonnage of the turret-vessel, as a wooden ship, would be 2,352 tons. As compared with the "Bellerophon," and other iron ships of the navy, this turret-ship is therefore nearly 2,500 tons burden, and would only fall short of the "Pallas" tonnage by 20 tons, even if measured as a wooden ship, whereas Captain Coles makes her measure 216 tons less. The truest representation of the size of a ship is by her displacement or total weight, and in this respect the turret-ship will exceed the "Pallas" by 378 tons, the displacement of the "Pallas" being 3,618 tons, and that of the turret-ship 3,996 tons.

1028. It appears that there is a difference in the draught of water between the "Pallas" and the proposed ship?—With reference to the draught of water, it is to be observed that Captain Coles has placed his ship more nearly upon an even keel than the "Pallas," which, I think, will take off somewhat from the fast turning of the vessel as compared with the "Pallas." At the same time it might be observed that the draught of water in the "Pallas" aft is some 15 to 18 inches greater than it need have been, had she been an iron ship, owing to the presence of the wooden keel. That wooden keel I have since done away with in vessels of the "Amazon" class, substituting metallic castings, so as to give the largest possible dimensions to the screw.

1029. It appears that the armour belt in the proposed ship stops 25 feet from the bow, do you think that that is an objection to the plan?—The stopping short of the bow armour is objectionable, especially in this ship. All the water-tight bulk-heads of the ship apparently are intended to stop short at the lower deck, which is less than three feet above the water amidships; therefore three feet is the margin of security, so to speak, which the ship possesses; if by any means either end of the ship becomes immersed to that additional extent, the ship being at the same time injured at the water-line at that end, the water would be free to flow from end to end of the ship, and she would sink. The omission of the armour from the bow would tend to produce in action this very result, for any injury there would tend to immerse her at the bow, and to let the water flow freely in. Therefore, I consider this a most objectionable feature of the design, and one which, while it is without parallel in any existing armour-clad of our navy, has no sufficient compensation in the small relief which the absence of the narrow belt of armour gives at the bow.

1030. Captain *Phillimore.*] Do you think if the armour-plating was carried on round the bow, and the foremast thwart-ship armour-plated bulk-head done away with, it would alter her sea-going qualities?—It would tend to immerse her somewhat more at the bow, but would not, I think, materially detract from her lifting properties in a sea; of course it would detract to some extent, and it would alter her trim.

1031. Do you think, on the other hand, if it was carried further aft and placed underneath the other thwart-ship bulk-head, it would be an improvement?—No, I think not.

1032. Do you think it might be better placed?—No. Completing the armour round the bow would be the right thing to do, leaving the bulk-heads out, because you could not do the two things.

1033. Do you think it would afford more protection if it were carried further aft?—You would then be subject to another disadvantage; you would keep the armour on the side, and a broad-side shot, entering from the opposite side, would be likely to strip it off.

[The Witness withdrew.

Adjourned.

Admiralty, Friday, 26 *May* 1865.

PRESENT:

Vice Admiral the Earl of LAUDERDALE, in the Chair.

Rear Admiral Yelverton.
Captain Caldwell.
Captain J. J. Kennedy.
Captain H. B. Phillimore.

Rear Admiral GEORGE ELLIOT, called in; and Examined.

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1034. *Chairman.*] I BELIEVE you are Superintendent of Portsmouth Dockyard?—Yes.

1035. The "Royal Sovereign" turret-ship was fitted out, I believe, under your superintendence?—Yes.

1036. But was completed under your superintendence?—Yes; all the equipments were completed under my superintendence.

1037. You have, I believe, paid considerable attention to the question as to the advantages of the

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the turret principle, both as regards sea-going ships as well as for floating batteries or harbour defence?—Yes; seeing the great importance of this prospective feature of naval warfare, it has naturally attracted my attention, more than, perhaps, anything else.

1038. Will you be so good as to look at the model and examine the plans of the sea-going turret-ship proposed by Captain Coles, from which you will see that it has only one turret, to carry two 600-pounders or 22-ton guns?—This model having been prepared in the model loft at Portsmouth Dockyard, and as I was frequently in communication with Captain Coles and Mr. Scullard, the draughtsman, in preparing the drawings now before me, and the model which I see, I am perfectly aware of all the intentions of Captain Coles, and all the requirements which he intended that model to fulfil. I was also present at the Admiralty when Captain Coles received the offer to prepare this model from the Board of Admiralty, and I should wish to ask if the letter from the Board to Captain Coles, containing their Lordships' direction, is present.

1039. No; we know nothing about it?—Because it is necessary for me, before answering any questions or expressing any opinions, to know whether I am to divest myself, and give my answers free from all consideration of those conditions under which Captain Coles was called upon to prepare this model. I consider that those conditions form a very prominent feature with regard to the answers that would be forthcoming with reference to this particular model, as I consider this drawing represents a competitive design with another ship, built or building by the Admiralty, and allowed to be selected by Captain Coles as the size of vessel with which he would compete.

1040. Any questions that are put to you here are entirely relative to the plan, and drawing, and proposal before us. We have nothing to do with under what restrictions these were made; we are merely asking you these questions relative to your opinion upon the plans as they appear here. Having looked carefully into the plans and drawings, and considered the advantages and disadvantages of a vessel constructed according to that plan and model before us, taking all the circumstances under consideration, do you think it would be advisable to build a sea-going cruizing ship on the plan proposed, and armed with the guns named, namely, two 600-pounders, or 22-ton guns, in one turret?—For a vessel of the same displacement as the model, I prefer the plan proposed to any other I have seen or heard of, for a sea-going armour-plated man-of-war full-rigged ship.

1041. Would you be so good as to point out the advantages which strike you of the moveable turret system, as applied to a sea-going ship, taking into consideration that the ship proposed has only one turret?—I believe it has always been acknowledged that a ship carrying the most powerful guns and the thickest sides has the best of it in a sea fight, at any rate as far as single ships are concerned, supposing her to be equal in other respects as to speed and manœuvring qualities. In the last American war I think this was fully proved, ships taking up their position at a few hundred yards further off than the penetrating range of their enemy had won the battle before it was in the power of that ship to close; and if one ship had equal speed and equal manœuvring power with another at sea, I maintain that at any rate at the commencement of an action she could choose her distance. The turret principle enables a ship to protect her guns and her sides at the vital parts with thicker iron than a ship on the broadside principle could do. The turret principle facilitates the working of the most powerful guns, and consequently I consider that the turret principle, taking equal displacement of two ships, must have the advantage over the broadside principle of carrying heavier or more powerful guns and thicker sides. And one of the most important elements of the turret principle is, that whilst the guns of a broadside are always exposed to the fire of the enemy when engaged on her beam, the guns in the turret need only be exposed for a second or two each time of being discharged, and then turned away whilst loading. If one considers the position of men pointing their gun, and loading their gun with a broadside port, open to the enemy, and if you consider, on the other side, a gun in a turret loaded, and laid for its object, whilst turned away from the enemy, I think it must be acknowledged that in the one case a quicker fire and a more precise fire must be anticipated; added to which, there are many advantages attendant on a gun loading when pointing fore and aft a ship out of the reach of the water, and a gun loading when pointed across a ship with the ports open to the water, and the decks probably flooded. Another great advantage, and perhaps the second principal feature of the turret, is the very small area of ports which is exposed to shot. I believe that everything has been done to strengthen by iron the broadside ports of the "Royal Alfred" now at Portsmouth, but still the area of open port is much greater than the area of open port in the turret; and the area of weakness of port, which I maintain to be from the inside of the ship, where the bevelling commences, presents a very grave feature in the advantages which the turret must possess. I consider, looking at the future character of war vessels as carrying defensive armour, that whatever the weight of guns to be carried by any vessel, she would be more formidable by having that weight in the largest description of gun that could be carried on board a ship, that is, I would prefer two guns of 600 lbs., throwing each 600 lb. weight of shot, to any larger number of guns, carrying a smaller weight of projectile, provided always that the 600-pounder could be produced as an effective gun. With this opinion, I accept the turret principle as the best means which can be adopted for rendering guns as securely manageable as possible in all weathers, and most effective, both as to the rapidity of fire, accuracy of pointing, and safety of loading, and for obtaining a greater range than it is possible to obtain by guns on the broadside principle, and commanding a greater arc of training. This mode of encircling the guns by a central cylinder of iron, also enables you to obtain the greatest amount of defence in weight of iron for the guns, as the area or surface of iron plating is much smaller than it could be were the two guns placed on the broadside; and much more so were there a larger number of smaller guns placed on the broadside; and as you by this plan reduce the surface of iron necessary for protecting the guns, it enables you to add to the thickness of the armour-plating on the other vital portions of the ship. Another advantage in the turret principle is, that it

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enables the weights to be raised in the iron-clad ships, which is a matter of great necessity, and more difficult to be obtained with the broadside principle. The height of the guns out of the water is another advantage of the turret principle, added to which, when the ship is rolling over, their being more in the centre of the ship, keeps them still further from being injured by flooding from the sea. The principle of armour-plating in the model is one which I particularly approve of, namely, protecting with the thickest amount of iron the ship will carry the water-line and the guns only; and although I consider six inches of iron not to afford that protection which armour-plated ships should carry, yet for a ship of the displacement of that model, it is evident she could not carry any greater weight. For a vessel of the size of the model, I do not see any important alteration that I would recommend, but I think it is a question for consideration whether in point of expenditure of money, it might not be preferable to increase the size of the vessel as the smallest class of armour-plated ship, so as to obtain a belt of 10 inches of iron, and two turrets instead of one; but this is purely a question of the smallest size of armour-plated ship that should be constructed, and not one peculiarly of turret-ship. One great feature of the turret principle, which I have omitted, is, that all the guns of the ship can be brought to bear on either broadside. That is, in two ships carrying the same guns, the turret principle presents a broadside of double the power of the other.

1042. Then are the Committee to understand from what you have stated that you are decidedly of opinion that, with the same weight of materials, no other mode of armament would afford equal power of attack and defence?—That is exactly my opinion.

1043. Have you been in, or looked into the large double turret of the "Royal Sovereign," containing the two 12-ton guns when it was worked, or when they were firing shot from the guns?—I have been both inside and above the turret whilst the guns were being fired with shot.

1044. Do you think that two such guns could be coolly and efficiently fought in action in that turret?—I see no reason why they should not; the two guns could be fired simultaneously, if it was thought proper, on all occasions.

1045. Do you think that these guns could be efficiently worked in a turret of any smaller dimensions?—If they are always trained fore and aft to load when the ship is rolling, I consider the double turret of the "Royal Sovereign" affords sufficient space for working the guns.

1046. The question I put was, do you think that space could with safety be reduced?—I should be very sorry, without more experience, to agree to any reduction of space.

1047. Then, will you carefully examine the dimensions of the proposed turret which is the same height, and 1 foot 10 inches more in diameter externally; do you think it would be possible to work and fight efficiently in the proposed turret two 22-ton guns or 600-pounders, the drawing of which gun is before you?—I should answer the question by saying that I think the two guns may be kept very close together, almost, in fact, in contact without injury; that the guns may be worked if there is sufficient space for the men on the outside part of each gun, for loading and sponging, and for other purposes. It is also possible to work underneath the guns so as to handle compressors or other mechanical appliances necessary; but I am not prepared to say, until I see it more clearly than this, whether the turret affords sufficient space; an increased size of a foot or two of the turret would be perfectly practicable without any very great additional weight; and before deciding upon the size, I think a skeleton gun-carriage and gun should be put up, of the lightest material, such as is used every day in the fittings of ships.

1048. Admiral *Yelverton.*] Am I to understand you that you would always turn the turret fore and aft for loading?—Yes; it takes, in the "Royal Sovereign," one minute to go round the circuit, say half a minute to go half round the circuit, and a quarter of a minute to go a quarter round the circuit; in a quarter of a minute, therefore, your gun is fore and aft, you may go on sweeping round the horizon. Continuing the half circuit in one direction you need not go back again; you do not care whether you are pointing forwards or aft; and I think whenever there is the least rolling, or if an enemy is upon your broadside at all, I would always turn away; I would never risk the muzzle of the gun even, because one crack on the muzzle might do for it. The other day, at Portsmouth, I considered the firing at a mark at sea very good with the turrets, and there is a decided advantage in being able to pull the trigger without waiting, after getting the object on, for the men to get clear of the recoil.

1049. The question was, would you always load your gun fore and aft?—At short ranges, certainly. When loading or engaged at short distances, I should certainly always turn the gun away.

1050. You spoke of firing the guns simultaneously; why would you fire them simultaneously?—Because it would admit of a greater rapidity of fire.

1051. Have you considered the impossibility of loading one gun at the same time you are firing another?—I never should load one gun at the time of firing the other; I should treat them as one gun.

1052. You would fire and load both guns at the same time?—I should.

1053. But have you considered that during the time you were loading these two guns, your ship would be in a defenceless state, and exposed to the fire of the enemy, without the power of returning it. How long do you suppose she would be so exposed, taking the difficulty of loading these heavy guns into consideration?—Just the same length of time that the enemy would be, having the same guns on board on the broadside principle.

1054. But do you consider that while you turn round your turret, you are exposing the weak side of it to the enemy?—I have no idea that the turret should have a weak side; I think it should be of the same strength all round.

1055. Then you consider that a defect?—I have always been of opinion that the whole weight of iron in the turret should be equally distributed all round, rather than have ten inches in the front, and six inches elsewhere.

1056. If in war time you were ordered to cruize in search of an enemy off the Western Islands in a winter season, and had the offer of the model ship now before you, or a ship of similar dimen-

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sions with two turrets mounting two guns of 12 tons in each turret, which would you prefer?—First of all, the ship with the two turrets must have a thinner belt than the one with the one turret, because the two turrets for 300-pounders would weigh considerably more than the one turret with the two 600-pounders, and in a reduction of weight there must be a reduction of the defensive power. For that reason, I should prefer a ship like the model; in addition to which, I should prefer the two 600-pounders for the reasons I have before stated. I could choose my distance, and whilst my shot was penetrating her, her shot would not penetrate me in the vital parts.

1057. Under similar circumstances of weather, which would you prefer, the model of the ship now before you, or a ship armed as the "Pallas," now building, is proposed to be armed, namely, the box principle, with four 12-ton guns, and a bow and stern gun?—In point of armament and armour defence, I should undoubtedly take a ship like the model with the greatest confidence that I should have the best of it, supposing the speed and manœuvring qualities of the two ships to be alike.

1058. Under the same circumstances already mentioned, should you prefer a ship built with one turret and two 600-pounders, or should you prefer a ship with two turrets and one 600-pounder in each?—Independently of the question of weight, I prefer the two turrets with the single gun; but as it involves a reduction of the defensive power I still cling to the one turret with two 600-pounders. All the answers have been given supposing myself to be confined to a ship of the tonnage of the model; but, as I said before, I am not quite prepared to say that for an armour-clad vessel of the smallest size, for fighting purposes, I should not prefer a vessel of larger tonnage as the smallest, and two turrets and a thicker belt.

1059. Then if I understand you rightly, if you were called upon to build a turret-ship yourself for the Admiralty, and were not limited as to tonnage, you would adopt the two turret principle in preference to the one turret?—At the present time, if I was called upon to propose a turret-ship for the navy, I should prefer a larger vessel than the model, which would enable me to have two turrets and a thicker defence of iron; in fact, as far as I have matured my opinions on this subject, I consider that a vessel of the "Hector" class is the smallest armour-plated sea-going ship that I would build for any man-of-war; and for vessels of less size I would dispense with armour-plating, and have the greatest amount of speed that it was possible for a vessel to obtain.

1060. Knowing as we do the power that the 12-ton gun has of penetrating all the armour-plating hitherto put to the proof, do you see any necessity for loading a ship with a gun of such weight as 22 tons, namely, a 600-pounder?—I am not aware that it has been proved that the 300-pounder will penetrate 10 inches of iron even at 200 yards, and I am strongly of opinion that unless you can keep out shot at a reasonable distance by armour-plating, you had better have none at all; but I have reason to believe that a ship of the "Warrior" class could carry a belt of 10 inches of iron and two turrets of the same thickness of iron with two 600-pounders in each, and I consider that such a ship would be immeasurably superior in fighting qualities to the "Warrior."

1061. *Chairman.*] Suppose the thickness of the plates carried on ships' sides to be so powerful that it was necessary to carry 600-pounders, do you think they could be as efficiently carried or fought in any other way than the turret system?—I see no other way by which the guns can be safely and efficiently handled and fought on board a ship.

1062. Admiral *Yelverton.*] Do you believe that the 22-ton gun or 600-pounder could be safely secured in bad weather in a turret?—I see no difficulty in doing so, as they could be chocked from the sides of the turret and between the guns themselves.

1063. Then you consider that the security of the turret itself would be in no danger by such a weight of metal inside her?—The weight of the turret is spread over so large an area at its base, and is supported by vertical pillars resting on the strongest part of the ship, and by oblique strutts affording lateral support, that I do not see any reason to fear for the security of the turret in heavy weather; the spindle can be of any dimensions; the turret may also be wedged, and the immense amount of friction presented at the base of the turret would alone prevent any important movement of the turret. I question whether, if there was no spindle at all, a concentrated broadside of four 600-pounders striking one turret would move the turret at all. I should like to qualify that expression by saying that the component parts of the turret should be a matter of serious consideration, and before being adopted, should be reported upon by the best engineering authority.

1064. Have you considered the liability of the turret to get jammed by splinters and shell?—The question of jamming the turret must, of course, be admitted as a probable contingency of any shot that might penetrate through the ship's side; but I do not see any reason why such an occurrence could not very readily be disposed of by clearing; there must be some large obstacle to stop it.

1065. Looking at the model before you, which do you consider the most vulnerable point as regards the men, by shot or shell; supposing the turret-ship was to windward of you, lying over, with her deck exposed, where would you try and hit her?—If I was close to her and could fire through her deck so as to get at the base of her turret, that would be the most vulnerable point, as regards the men, and as against her offensive power, but an inch of iron underneath her deck would turn off shot to a very great extent, at any angle by which you could depress your guns.

1066. You admit, however, that the men working the turret would be exposed and, comparatively speaking, undefended?—If a ship, at close quarters, with guns depressed took advantage of the roll, it is possible she might penetrate through the upper deck; but I think it a very unlikely thing to occur, if you consider that for a shot to enter from the other ship, the two ships must be rolling the same way at the same moment, and that the amount of depression given to ships' guns is very small.

1067. I will now invert the position of the two ships, and I will put you to windward, and the turret-ship to leeward; how would she depress her guns sufficiently to hit you, without injuring her own deck, supposing she was obliged to fight under

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under canvas, and heeling over seven degrees?—Such a position could only become necessary, supposing my steam power to be lost, and the amount of depression that can be given to a gun in a turret can be, without any difficulty, equal to the amount of depression given to a broadside gun, depending upon the height of the gun above the deck, and the angle at which the deck is placed. I believe as the gun is placed in the "Royal Sovereign," it has a depression of four degrees; but I see no reason why the gun should not be higher from the deck; it merely involves raising the turret, which is more weight, and the turret is very low as at present; but as such a contingency would happen very rarely in a ship's commission, I think we need not prepare for it.

1068. Looking at the drawings before you, do you think that the up-take is sufficiently protected, compared with other armour-plated ships of somewhat similar dimensions?—That depends entirely upon the thickness of armour-plating in the other ship, because if the armour-plating does not keep out a shot, the up-take would be liable to less injury with no armour plating at all.

1069. *Chairman.*] As I believe you are aware that Captain Coles allows 60 men to work the two 300-pounders in the "Royal Sovereign," I conclude that upon the same ratio he will allow about 80 men for working the two 600-pounders in the proposed turret-ship; looking at the space in which these men would have to be stationed in working the guns, we suppose there would be only about 12 out of the 80 in the turret, the rest would be in this space working the tackles; do you think that there is space enough there for the men to work efficiently?—The actual number of men required inside the square box, which protects the base of the turret, is considerably reduced by the winches that are to be employed for running the guns in and out; therefore, I do not anticipate any want of space.

1070. Captain *Caldwell.*] Supposing 40 men to be required as the minimum, there would be space sufficient for them within the thwart-ship bulkheads inclosing the turret, but this ship is supposed to have a complement of 225, which will leave 180 men and officers not occupied in working the guns; where are those 180 men and officers to go when the ship is in action, will they have any protection whatever?—They must be below the armour plating, in a corvette like the model.

1071. In the hold?—Below the armour plating, in the hold in fact, or in the engine-room, or somewhere.

1072. The protection afforded to the working parts of the turret is the thickness of the armour plating on the ship's side, 6 inches. As this armour plating is easily penetrable by a 12-ton gun, and if penetrated by a single shot, the splinters would no doubt damage the working part of the turret, and in that case the power of moving the turret would probably be stopped; is not this a great disadvantage in having a single turret?—The size of the ship limits the thickness of the defensive armour plating; and if compelled to come within range of penetration of a 300-pounder, the base of the turret of this model ship would become vulnerable; but it would be the duty of this ship to keep at long range as long as possible. However, I have before said that I consider armour-plating should be thicker than 6 inches to be effective; for that reason I prefer a larger ship.

1073. Does not this place a ship armed with only one turret at a great disadvantage, opposed to an enemy whose offensive means of attack are not confined to one spot?—I consider the advantages to be set off against the disadvantages to be much in favour of the turret. I acknowledge there are weak points, but not so great as in any other case.

1074. If a single turret-ship was attacked by two vessels, do you consider the turret-ship would labour under greater disadvantages, or under less disadvantages than a broadside ship?—A ship with one turret and two guns will throw the same number of shot against two adversaries, as she would do if she had one gun only on each broadside. I have only to load with my gun fore and aft, and direct my fire alternately on each side upon my enemies, and I am doing the same work as if I had one 600-pounder on each broadside.

1075. I think you have stated that you consider the vital parts of this ship are protected by this armour-belt; this is the section (*pointing to the drawing*) showing the position of the belt four feet below the water and two feet above. Supposing this ship was rolling 10 degrees, a very common roll at sea, a shot entering above the armour plate at an angle of seven degrees would cut the top of the boiler, or at 10 degrees it would fully pass through the boiler, and would also pass out below the armour plating on the opposite side of the ship?—I do not believe that the shot would penetrate the deck at that angle; I believe the one-inch iron deck would deflect the shot; if it is proved otherwise it shows the necessity of increasing the thickness of deck.

1076. Captain *Kennedy.*] Supposing the shot was from a battery on a height?—In such a case all armour-plated ships are vulnerable.

1077. And are not ships without bulwarks more so?—I should say yes, but I do not know; because a ship without bulwarks has a thicker armour plating below, and a ship with bulwarks has a thinner armour plating below; therefore, if she came up to a battery, the ship with the thinner armour plating would be more vulnerable below, and the ship without the bulwark would be more vulnerable above.

1078. As you advocate belts with unprotected top-sides similar to the proposed ship, have you ever thought of the effect of shot penetrating the unprotected sides and striking the iron plates on the other side of the ship, on the inside, and bursting them out?—In the model the iron deck is level with the top of the armour plating, and it is one of my conditions connected with the belt principle, that it is surmounted by a deck of sufficient thickness to deflect shot.

1079. Captain *Caldwell.*] Will you favour the Committee with your opinion as to the desirability, or otherwise, of continuing the belt completely round, or stopping short, as in the model, 25 feet from the bow, where the cellular system is introduced?—I would prefer carrying the belt all round.

1080. Then probably that would be to the loss of some of her good sea-going qualities?—Very little; she is not like the other vessls, she is quite able to bear it.

1081. Have you considered at all the principle of the tripod masts; do you consider them an essential part of the turret system for a sea-going ship?

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ship?—I certainly do. I consider that for sea-going turret vessels a tripod mast is an essential part of the principle; and, having well considered the subject of the tripod masts, I see no reason why they should not answer, if properly fitted. The only point I think of importance is, if you have got an iron mast and rope shrouds, you have got the rope giving and the iron a fixture, which is inconsistent, and you have got the same weight of rope on each side, whereas, if you had half the strength of iron that you have of rope, the two are both acting both ways, and you have the same support with half the amount of weight; but if you have the same weight of iron that you have of rigging, you will have double the support, and if one of these is knocked away the other will hold the mast, if rolling in a sea-way. But there is one point, which is this; the amount of working of one of these iron ships is so small, necessarily, that it is hardly worth considering; but still I would propose to have more of these joints, and to have them with india-rubber, to give it a little elasticity; this vulcanized india-rubber squeezes down and immediately takes up its own bulk again. I propose having at the bottom a sort of cylinder like a stuffing box, to have a mass of india-rubber in it so as to let it work. You will have a little give then with the ship; and I do not see myself why the plan should not answer well.

1082. In case you should have to work the turret-ship when cleared for action, how would you manage with the men on deck, if you were engaging at the same time; how could they work the ship in the case of being obliged to fight and manœuvre the ship under canvas; could the men be on deck at all?—The men would be completely exposed if obliged to be on deck.

1083. It has been suggested that the ropes could be all led down on the lower deck through the hollow masts; do you think it would be feasible to work the ship from the lower deck?—Looking to previous naval engagements under canvas, it is merely the moving of the yards about, as the courses are generally hauled up, and the ship under easy sail; and we know that the main braces of ships, and even the fore braces of ships, but especially the main braces, are generally worked on the main deck; and I see no reason why the braces should not be led on to the deck below, but if compelled to fight under canvas alone, and the men on deck, the turret-ship certainly would have a disadvantage.

1084. Captain *Kennedy.*] Would there be more danger from their own guns than from the enemy's guns?—Yes; but if you could work the braces on the deck below, it does away with it.

1085. Admiral *Yelverton.*] Do you not think that the masts, spars, and boats would interfere very much with the working of the turret, coming in the way of the line of fire?—No; I think they would be placed perfectly out of the way.

1086. *Chairman.*] I think you have paid particular attention to the facility of pointing guns, which is a very material point?—Yes, I have.

1087. What is your opinion of the efficiency of the mode adopted in the turret-ship by Captain Coles, particularly as to laying the gun for elevation; have you also considered that the man who directs or points the gun, is less protected than any other man in the ship; I mean particularly with regard to being exposed to rifles, small arms, shot, or grape?—The captain of the turret, whose head is exposed at close quarters, is certainly liable to be shot by a good shot with a rifle; but I question if he would be so badly off at close quarters as the captain of a gun behind a gun with an open port in a broadside ship. With regard to pointing and laying the guns for elevation, I do not see that there is any difficulty that presents itself in the turret system; on the contrary, I think that the large sights on the top of the turret, from what I saw of the firing, give great advantages to the man who has the open horizon to look at instead of, as between decks, having his view cramped; I always train the men to lay their guns and fire in the centre of the roll. I think, for all practical purposes of naval action with heavy guns, all the requirements of the case will be found to exist in the turret principle, but this will be ascertained after more experience; you may find instances where it would be inconvenient, but on the whole the advantages are much in favour of the turrets.

1088. Captain *Caldwell.*] The turret vessel involving a necessity of turning down bulwarks to clear for action, do you not consider that for a cruising ship, constantly at sea, it is a disadvantage, as compared to a ship with standing bulwarks, inasmuch as there is little shelter for the crew, and the bulwarks must be slight and liable to be washed away?—No doubt the shelter afforded for men, for comfort with falling bulwarks, will not be so great as with the ordinary higher bulwarks, fixed bulwarks; but the question of real importance is, which ship or fleet is to win the battle: beside that, all other points must be considered as of minor importance. Supposing the fleet captured, what would be thought of these advantages then. The command of the sea is a matter of too great national importance for any points, but those not actually essential, being considered in the construction of a war ship, where they become antagonistic to efficient war fleets; and I consider that the turret principle presents no grave objections to obtaining all the comforts that could be required for men and officers on board ship.

1089. *Chairman.*] As to stowage of anchors, and facilities of working the cables, do you see any objection, as a sea-going ship, to the way in which the anchors are to be stowed and worked, and as to their security in a sea-way, supposing them to be worked like those in the "Royal Sovereign"?—The anchors and cables are all to be worked on the upper deck before the turret, in the model, and therefore I see no objection to it; but the "Royal Sovereign" has no waist anchors, and carries one heavy anchor aft. I object to that plan, as being unserviceable.

1090. Do you think there is sufficient accommodation for the officers and crew, with regard to their health and comfort, and protection from weather and sea, both when cleared for action and under ordinary circumstances?—Yes, I do.

1091. Also as to ventilation?—I think she has ample provision.

1092. You see no objection to the arrangement of boats?—With regard to the boats, I think the turret principle is at a disadvantage.

1093. Looking at the plan for the hold, have you any doubt of her being able to carry the provisions, water and stores?—None whatever; there is immense stowage. I beg to point out one thing, which none of the other ships have got. The stowage of coals is such that she would never be the least out of trim from loss of coals. It is in

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the centre of the ship. The engines are a fixed weight. The boilers would be a fixed weight by keeping them full of water. The coals should always be in the centre of the ship, and the ship need never be out of trim.

1094. Captain *Caldwell.*] Do you consider that the provision made for the stowage of the boats at sea is sufficient for a cruising sea-going ship?—There is no doubt that the question of the stowage of boats, so as to have the boats out of the way of the line of fire of the guns, must always be a difficulty in any turret-ship; but, after all, it is very seldom a ship comes out of action with a boat, wherever stowed, fit for use.

1095. *Chairman.*] With regard to the arrangements for steering and for manœuvring the ship in action, do you see anything objectionable in the proposed plan?—No, I do not see anything objectionable.

1096. Are there any other advantages of the turret-ship that we have not alluded to, or that we have not mentioned?—One of the great advantages of the turret principle is, that from commanding a great arc of training the guns, the ship has the power of placing herself in such a position with regard to the sea that she will reduce the unsteadiness of the vessel and thereby increase the accuracy of fire, whilst a broadside ship may be compelled, if her guns are to be kept bearing, to have the sea on her broadside.

1097. Captain *Kennedy.*] As you lay such stress upon the advantages of speed, what is there to prevent a sister ship, with half a knot more speed and armed with four 12-ton rifled guns choosing her distance and destroying the turret-ship, by firing at her unprotected parts?—I see no reason why this model ship should not have the same speed as the "Pallas" without interfering in any way with the turret principle. If another ship has half a knot more speed, it is an undoubted advantage.

1098. *Chairman.*] With regard to the proposed vessel's sea-going qualities, easiness in a sea-way, rolling and pitching, what is your opinion of her in comparison with the "Pallas," or a ship of a similar size?—I consider her form to be better adapted for carrying weights than the "Pallas," and she has a flatter floor, and ought to be an easier ship in a sea-way, and an increased motion is a loss of speed; I anticipate from the lines of this vessel that she will have equal speed with the "Pallas" under average circumstances, notwithstanding her greater displacement.

1099. In looking at the model and drawing you will see that her deck is 10 feet out of the water, on which is a moveable iron top-side of five feet, do you think that is sufficient to ensure reasonable protection and dryness to the crew when the ship is at sea, and obliged to be forced against a moderate head sea?—Whilst the bulwarks are up I consider it is; but if the bulwarks were down for action, and the ship pressed in a sea, there is no doubt that the deck would be considerably exposed, but the men need not be on deck whilst the ship is under steam.

1100. Do you know of any disadvantages of the turret system, as applied to men-of-war, which the Committee have not brought before you?—No, I do not remember any.

[The Witness withdrew.

Adjourned.

Admiralty, Monday, 29 *May* 1865.

PRESENT:

Vice Admiral the Earl of LAUDERDALE, in the Chair.

Rear Admiral Yelverton.	Captain J. J. Kennedy.
Captain Caldwell.	Captain H. B. Phillimore.

Captain the Hon. ARTHUR A. COCHRANE, C.B., called in; and Examined.

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1101. *Chairman.*] I THINK you commanded the "Warrior" for upwards of three years?—I did; three years and six months.

1102. Will you state her main-deck armament when you first took her to sea?—Her armament consisted of 68-pounders, 95 cwt., mounted on rear-chock carriages on the main deck.

1103. How many on the main-deck broadside?—There were 17 on the broadside. On the upper deck there were four 40-pounders, and two 110-pounders, Armstrong's.

1104. Did you find any difficulty in working the 95-cwt. guns in bad weather, such as when the ship was rolling from 10 to 15 degrees?—No, there was no difficulty whatever.

1105. They could be worked with perfect safety and efficiency?—With efficiency and safety.

1106. Of course you had proper precautions?—The usual precautions.

1107. The guns were mounted on rear-chock carriages, I think you said; were they worked with the usual tackles, or were there any mechanical appliances?—The guns were mounted on rear chock carriages, and worked with the usual tackles and roller handspikes.

1108. Do you recollect what was the heaviest rolling of the ship when you were exercising the guns at any time?—When the ship has been rolling from 20 to 25 degrees the guns have been worked, but under those circumstances they require to be carefully tended.

1109. What is your opinion upon the practicability of working 6½-ton guns on the broadside. Perhaps you will state which carriages you think would be most advantageous, the rear-chock or the

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the pivot-slide ?—It is quite practicable to work 6½-ton guns on the broadside, but they would require a numerous and well-trained crew. I should prefer the slide carriage.

1110. Do you think they could be practicably worked with efficiency and safety ?—I think so. Considering all the different circumstances under which the guns would be used, I think the slide carriage would be preferable to any other.

1111. And you see no impossibility in working them with safety and efficiency ?—No, none. If the 6½-ton guns were mounted on our present slides, and in our present ports, they would lose considerably in range: 68-pounders on slides lose about 400 yards range, occasioned by the present nature of the slide, which requires the trunnion to be higher off the deck than when the gun is mounted on a rear-chock carriage. The backing of the ports, if not the ports themselves, would probably require modification for the 6½-ton gun.

1112. What is your opinion with regard to the 12-ton guns; I mean with regard to carrying them as broadside guns with safety, and working them and fighting them with efficiency in an ordinary sea-way ?—The only occasion upon which I have seen guns of that calibre working was on board the "Royal Sovereign," but I see no reason why guns of that calibre should not be worked, if mechanical appliances were used to assist the men.

1113. You say you saw them worked in the turret of the "Royal Sovereign"?—Yes.

1114. Do you think they could be as safely and efficiently carried, and as efficiently worked on the broadside system, or upon an ordinary system, as they would be in the turret ?—I think that such very large guns would require mechanical appliances to assist the men, and these mechanical appliances being in use, the guns could be trained the number of degrees the port would admit with equal facility in the broadside as in the turret system.

1115. Which would be the best mode of carrying them safely, and working them with efficiency, the broadside or the turret ?—The carrying the guns with safety must, of course, depend upon the nature of the carriages and the mechanical appliances in use; and the efficiency of the gun would depend, in a measure, upon the construction of the ship, the height of the port from the sea, the amount the ship would roll, and also with relation to the angle of training the gun would obtain.

1116. But supposing the mechanical appliances to be equal, the rolling qualities of the ship the same, and the only difference being that the gun in the turret would be, perhaps, a couple of feet or three feet higher from the water than on the broadside, which would you consider the best way of carrying them ?—If the platforms were equally steady, and one gun was higher out of the water than the other, and less liable to be influenced by the effect of the sea, that one which was mounted highest could be most efficiently used.

1117. In what way do you think it would be desirable to fit a sea-going turret-ship of the dimensions shown in the plan and model before you, namely, 2,400 tons; do you think it would be desirable to fit her in the proposed way, with one turret containing two 600-pounders, weighing 22 tons each; or, taking the same weight, do you think there would be any more desirable way of arming her, whether the box plan, or any other plan you are aware of, would be better ?—I think it would be objectionable to have the whole armament in one turret.

1118. What mode do you think would be better ?—If the weights would admit of it, I should prefer having four 300-pounders in two turrets.

1119. Have you seen the 600-pounder, called "Big Will," mounted ?—No.

1120. Looking at that drawing of "Big Will," do you think that gun could be safely carried and efficiently worked on a ship's broadside, taking it for granted that the same mechanical appliances and the same facility for moving it existed in both cases; what is your opinion as to the feasibility of carrying such a heavy gun on the broadside; supposing it were necessary to carry a gun of that weight, would you sooner carry it upon the broadside principle, or upon the moveable turret principle, or in a fixed turret ?—I should prefer seeing a gun of that calibre mounted in a moveable turret.

1121. Do you think it would be desirable to carry such guns in a sea-going ship so long as it was found that 12-ton guns were sufficient to do the work required; I mean, were sufficient to penetrate or destroy the heaviest armour-plates now upon our own or foreign men-of-war, sea-going ships ?—I should prefer the 300-pounder.

1122. Do you recollect what the height of the "Warrior's" bow was out of the water when she was in a deep trim, with all her stores in ?—About 23 feet.

1123. Did you ever press her against a strong breeze with a head sea; I mean such a breeze as a strong trade wind ?—Often.

1124. About what speed did you get under those circumstances ?—Against a gale of wind, force 8, and a sea due to a strong double-reefed topsail breeze, she has steamed 10 to 10½ knots; and in a heavy gale of wind in the Bay of Biscay, with a very heavy sea, she was steamed at a rate of about 3½ or 4 knots, not but what she could have done a great deal more, but I thought it was undesirable to force the ship.

1125. When steaming against a breeze with a force of 8, did she take the water over, or did she ship any what is termed green sea, or merely spray ?—She took in no seas over all; there was merely a sea due to a strong double-reefed topsail breeze.

1126. What I want to know is about her wetness when forced at that rate, 10 knots against a breeze of the strength of 8 ?—The sea was strong, but it was not proportional to the strength of the wind; this trial of steaming occurred in coming up Channel against an easterly gale; under these circumstances the "Warrior" would scarcely pitch at all.

1127. Then she was not taking anything over her forecastle ?—A good deal of spray.

1128. At that time could you carry the bow ports on the main deck open ?—No.

1129. Could you carry the bow ports on the upper deck open ?—No.

1130. Could they work a 100-pounder gun out of the upper-deck bow-port ?—No.

1131. Will you be so good as to look at the drawing and model of the sea-going turret-ship, from which you will see that this proposed vessel is only 10 feet from the water-line to her upper deck, and after that the only protection is the moveable iron topside of about five feet high, which

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which is on hinges; do you think that that vessel would be sufficiently high out of the water to be forced against the ordinary sea met with in strong trade winds which blow all round the world, and the monsoon and periodical winds which blow down the west coast of Europe and Africa?—I think she would be too low forward for a vessel weighted as she is.

1132. Looking at the model and the drawing, are there objections to the vessel that strike you, as to her capability as a man-of-war, stability, rolling, pitching, and all that, supposing the weights are all satisfactorily placed, in the best manner?—I should much prefer being allowed to consider this question, and to give my answer in writing. Before answering the question, I should wish to be furnished with the weight of armour plating and backing in the "Warrior" and "Defence," that I may form a comparision. It is one of the most complex questions that could be asked. I am quite ready to say that I see no objection in the form of the vessel, on a cursory view, but I think she is much over-weighted.

1133. Do you consider that the "Warrior" was over-weighted?—No.

1134. Admiral *Yelverton.*] Looking at the drawing and model before you, and with your thorough knowledge of what the "Warrior" can do, in all weathers, would you, in war time, if called upon to cruise in the winter months off the Western Islands in search of an enemy, prefer the "Warrior," or a vessel with two 600-pounders, built on the plan of the vessel now before you, supposing at all times that the 600-pounders could be easily worked in a turret?—I should prefer the "Warrior."

1135. Under the same circumstances, which would you prefer to command, your own ship, the "Warrior," or a vessel of this description with two turrets, mounting in each turret two 12-ton guns, or 300-pounders, the thickness and amount of armour plating in both ships being alike?—If the ships had equal speed and stability, the "Warrior's" present armament being retained, I should prefer the vessel mounting the four 300-pounders in turrets.

1136. Supposing a vessel like the one before you, only about 1,000 tons larger, with two turrets, and one 600-pounder in each turret, which would you then prefer to command, under the circumstances as first stated, the "Warrior" or that vessel?—If the speed and stability of the two ships were the same, I should prefer the vessel with the two turrets, mounting the two 600-pounders. If the two guns were in one turret, I should prefer the "Warrior."

1137. Do you know the "Achilles"?—Only by description; I have not been on board of her.

1138. From what you have heard of her, would you prefer her to the "Warrior"? — The "Achilles" has the advantage of being plated round the water-line; but all circumstances being considered, I should prefer commanding the "Warrior."

1139. Captain *Caldwell.*] Have you had any target practice at sea in the "Warrior"?—A great deal.

1140. What was the average amount of roll when you had target practice in a heavy swell?—About 23 degrees.

1141. When rolling to that extent, did the water come into the ports?—Yes.

1142. In an amount sufficient to inconvenience the working of the guns?—A considerable amount of water would have been taken in, had the ports not been attended to.

1143. Were you enabled to make good or fair practice when the ship was rolling in that way?—Indifferent.

1144. Do you think there is a difference in getting the aim between the guns worked on the main deck and those on the upper deck; could the main-deck guns or the upper-deck guns be worked with the greatest rapidity?—The upper-deck guns being higher above the sea, enable you sooner to see the object to be fired at, and therefore could be fired with greater rapidity than the main-deck guns.

1145. Do you consider, then, that guns fired from a turret where an uninterrupted view of the horizon can be commanded, could be fought with a greater amount of quickness than guns on the broadside between decks?—Yes.

1146. In that case, then, a ship armed with a turret, supposing other things to be equal, would have an advantage in rapidity of fire over a vessel armed with guns on the broadside?—Yes.

1147. What do you consider the particular disadvantages of the turret system for a sea-going ship, or do you consider it has any advantage over the broadside principle of armament?—I consider that the turret principle has advantages over the broadside principle. Among those advantages may be enumerated the large number of guns which you will bring to bear ahead or astern (assuming that a ship were constructed with four or five turrets); the isolation of the guns the one from another, so that in case of shell penetrating the ship only one turret would be rendered useless, whereas were a shell of large dimensions to penetrate between decks, the effect would be much more serious and damaging. The officer directing the turret would also command an uninterrupted view of the enemy, which is now not practicable from a main-deck battery; and the guns being further removed from the wash of the sea, could be fought in very bad weather.

1148. Are there any disadvantages of the turret system that occur to you, for a sea-going ship, as compared with the broadside system?—I think the advantage attending the use of a turret-ship, of being able to attack an enemy with an overwhelming fire on his weakest point, viz., the bow or stern, is so great, that any difficulty or disadvantage which may be considered to attend the use of the turret principle could be overcome. But it is my belief that sea-going turret-ships, though they will be more efficient than broadside ships, will be larger and more costly. A vital point with turret-ships is, that they should be able under most circumstances, to fire their guns ahead, when steaming against a considerable sea; the power of doing this when her bulwarks are down, can only be accomplished by raising the deck of the turret-ship much higher than the fighting deck of an ordinary broadside ship; this must increase the tonnage and expense; but the guns, when so mounted, will be more efficient, and well repay the outlay.

1149. With a ship armed with one turret only, may it not be considered a very great disadvantage that a single shot penetrating either through the deck or through the broadside, would very possibly disable the turning gear, and render the ship defenceless?—The turning gear could be protected by a transverse bulkhead, forward or aft.

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1150. It is so in this model, but it is only of the same thickness as the armour plating on the side, which is easily penetrable by a 300-pound shot; is not that a disadvantage?—Yes, it is a disadvantage, of course.

1151. Captain *Kennedy.*] Are you aware of the weight of turrets, and the space they take from the accommodation of the ship, when you speak of arming a ship with four or five?—I am aware that the weight of the turret is considerable; as regards the accommodation, the same complement of men would not be supplied as to a ship of similar tonnage of the ordinary construction, and therefore, less accommodation would be required.

1152. Do you approve of having the ends of the ship unprotected, taking both her fighting qualities and her sea qualities into consideration?—I think that the water-line should be protected.

1153. By a belt?—By a belt.

1154. All round?—Yes, all round, or extending to within a few feet of the bow.

1155. Have you ever remarked at sea, with the iron-clad fleet, that the unprotected portions of their side were exposed so that you would be enabled to injure them?—Often.

1156. Which of the systems of plating do you consider the best, of the ships that you saw at sea?—I consider that some of the ships were better fitted to perform certain duties than others, and those which were thickly plated all round, and that were much shorter than the "Warrior," though of about equal draught, were better suited for narrow channels, and attacks on river defences, than the "Warrior," and those of a larger class. But, that should an emergency arise at a distant part of the world, the "Warrior" would arrive there much quicker, and probably in a much more efficient state than the smaller vessels, and also with a much less proportional consumption of fuel, two tons burden of the "Warrior" being conveyed at the same speed and cost, as one ton in a vessel of the class and tonnage of the "Emerald," the "Warrior" being 6,109, the "Emerald" 2,913 tons.

1157. Knowing that the 12-ton guns of the present day will pierce almost any iron plate that a ship can carry, do you think it would be better to have a ship wholly unprotected by armour, or with small plated iron, such as the "Warrior" carries, namely, 4½ inches?—I think the vessel should be plated.

1158. Would you say all over, or partly?—Like the "Minotaur."

1159. Captain *Phillimore.*] If a shot entered before the armour plating at the water-line of the vessel proposed by Captain Coles, do you think she would go down by the head and become unmanageable?—Some one of the many compartments would fill, and depending upon the number perforated, of course, would be the immersion by the bow of the ship.

1160. Admiral *Yelverton.*] Do you consider, with the same weight of materials, any other mode of armament would afford equal or greater powers of attack or defence?—I should like to show you a drawing of a turret, which, if mounted on the deck of some of our ships, would be of advantage. (*The Witness here produced it.*) It is a drawing of a fixed turret 25 feet high, with a revolving gun mounted *en barbette.* The tower being of this great height enables a plunging fire to be delivered when the enemy's ship is in proximity; the shot would take effect over the top of the armour plating and through the decks or bottom of the enemy, whereby all the ships as at present armour-plated, would be rendered useless.

1161. Captain *Phillimore.*] What do you consider the effect of a shot would be, striking the deck of the "Royal Sovereign" when she was rolling five degrees towards the direction the shot came from?—If it struck at a high angle and with high velocity, I have no doubt it would penetrate.

1162. Admiral *Yelverton.*] Have you considered the system of masting ships by the tripod?—I have seen the models and drawings of Captain Coles' method of rigging vessels; but I think it would be most desirable to construct men-of-war adapted for sea work with masts only suitable to carry fore-and-aft sails; and in corroboration of this view, I may mention that many of the largest merchant steamers are fitted with fore-and-aft sails only, and are not more uneasy at sea than those fitted in the ordinary manner.

1163. Would you prefer having a ship with tripod masts or the ordinary rigging in going into action?—I should prefer the ordinary masts; one reason for doing so would be, that I have experience of the usual method, and no practical experience of the other.

1164. *Chairman.*] Do you consider it an advantage or a disadvantage to a sea-going cruising man-of-war steam vessel, to be fully rigged, that is, to have as large a spread of canvas as an ordinary sailing ship?—I think that for different objects, and suited to act in different parts of the world, the rig of a vessel must be modified to meet those circumstances; for the purpose of fighting in action, I think the masting should be as small as possible; for the purpose of cruising, vessels must be constructed to suit those requirements, with a larger amount of masting than those more immediately defending the sea coast and the seas adjacent. I believe the ship rigged masting of the "Warrior," would not suit a vessel like the turret-ship proposed.

1165. The question I put to you was, whether you considered it an advantage or a disadvantage that a sea-going cruising man-of-war steamer should be rigged with as large a spread of canvas as an ordinary sailing ship?—I think it a disadvantage. Among other reasons for that opinion, is the great weight of masting, which vessels that are iron-plated can very ill carry; the weight of the bowsprit has a great tendency to make them pitch; the bowsprit also interferes with the training of guns ahead. It was much more desirable, a few years ago, for a ship to be fully rigged than now, inasmuch as engines had not arrived at that degree of perfection which they now have, it being very rare indeed for a vessel to be detained by any accident to her machinery; and I may mention that during the commission of the "Warrior," she never was delayed upon any one occasion by any fault in the machinery. I would add that the square sails on the mizen-mast in a short vessel are comparatively useless at all times, except with the wind free, and the large vessels generally carry so much weather helm as to render these sails of little value. I think that a cruising steamer, fitted for foreign service, should be rigged (according to her size) with one or two square rigged masts centrally placed, and a fore-and-half rigged mast forward, with one or two fore-and-aft masts abaft, and no bowsprit.

1166. If there is any point connected with the turret system as to which we have not asked you, or upon which it strikes you that you can afford information, the Committee will be glad to hear it, either as to its advantage or disadvantage?—With relation to the ship under discussion, I have nothing more to observe.

1167. Admiral *Yelverton.*] Having seen the drawings and plans of this sea-going cruising turret-ship, do you think the principle of the turret system is worthy of adoption?—I think it very desirable that a sea-going turret-ship should be sent to sea as soon as possible, in order to obtain additional experience.

[The Witness withdrew.
Adjourned.

Captain the Hon. *Arthur A. Cochrane,* C.B.

26 May 1865.

Admiralty, Thursday, 1 *June* 1865.

PRESENT:

Vice Admiral the Earl of LAUDERDALE, in the Chair.

Rear Admiral Yelverton.
Captain Caldwell.
Captain J. J. Kennedy.
Captain H. B. Phillimore.

Rear Admiral R. SPENCER ROBINSON, called in; and further Examined.

Rear Admiral *R. S. Robinson.*

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1168. *Chairman.*] I THINK, on your last examination, a question that was put to you was, "Do you consider that with the same weight of material, namely, with the weight of all the armour plating, the weight of the guns, and the weight of the materials used for the moveable turret, with any other mode of armament, or any other arrangement, you could afford equal or greater power of attack or defence"? and you wished to take time to consider that question?—Yes, to put my ideas into shape.

1169. Will you now be so good as to give your opinion upon that question?—After taking a little time to consider, my answer would be this, that I am not able to answer the question in the terms put by the Chairman; for it is evident that the materials arranged for the construction of a particular design of ship would not be applicable exactly to another kind of design, and that to ask any person to take a great portion of the materials arranged for a particular purpose, and apply the remainder to quite a different design, is requiring work to be performed under such circumstances as no one would choose of his own accord, and which could not lead to a satisfactory result. But I think that, taking a larger view of the question, and interpreting it to mean, could a better sea-going ship be designed than the one proposed by Captain Coles, the design being limited to the same weight of materials; that is, no more displacement being allowed when equipped for sea than that proposed for the turret-ship, to possess also as much power of attack and defence? I think there is no doubt that the question can be answered affirmatively, and as follows:—Taking the dimensions, displacement, and speed of Captain Coles' design as not to be departed from, the ship I should consider as better qualified to go to sea as a cruiser with superior powers of defence and offence for service at sea would be something like this sketch (*the Witness here produced a drawing*). This is roughly the design that I think would possess greater powers of attack and defence, and greater powers for cruising and performing services at sea. The general description of the ship would be this: the 6-inch armour plating goes round the ship at a height of about 5 feet above the water line, she will carry four 12-ton guns in broadside, protected by 6-inch armour plates, with arrangements for great training on bow and quarter like the "Pallas"; her bow and stern will be defended by armour plating, and she will fight a 12-ton gun in the line of keel forward and aft. The broadside ports would be 8 feet out of the water, the bow port 10, after 8 feet 6 inches; the bulwarks would be 20 feet out of the water, fixed; she would carry a full power of canvas on ordinary masts. This ship, in my judgment, as a sea-going fighting ship, is superior to Captain Coles' design, as it presents fewer points of weakness and fewer imperfections. I think I need not recapitulate to this Committee the objections which I have already given to Captain Coles' design; but I wish to say that I especially limit my remarks to service at sea, for I have already told the Committee that for the defence of harbours, rivers, inland waters, and for coast defences in fine weather, I consider a modified turret-ship superior to all others, however much I may object to the particular design of Captain Coles' before me. I also wish to add, that I should not recommend the construction of any sea-going armour plated ship of so small dimensions as the design I have put before the Committee; this design is limited by the dimensions and by the displacement that the Committee have given me; it is not a design that I myself should consider a perfect design, but being limited in dimensions and in displacement by what I was told by the Committee, this is the best fighting and cruising ship I could design on those dimensions. I consider the dimensions too small to get a satisfactory iron-plated sea-going fighting and cruising ship.

1170. In the design you have put before the Committee, is it intended to carry four 12-ton guns or six?—She is to carry six, two of a side, and one on the bow, and one at the stern.

1171. From your experience at sea, both in command and otherwise, and considering the very general opinion of naval officers as to the great objection to carrying heavy weights in the extremities of sea-going ships, particularly those of great speed, when required to be forced against a head

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a head sea; taking that into consideration, do you think the proposed ship would carry such heavy guns in her extremities, without her sea-going qualities being deteriorated?—This ship has been designed expressly to carry those weights at her extremities, and the distribution of her weights has been so calculated as to lead one to suppose she would not be more uneasy than many ships of good reputation; I see no difficulty therefore in fighting these heavy guns in the extremities of this ship, whose speed has been regulated not by the maximum obtainable, but by the speed given by the Committee. Of course, the guns when not in action would not be carried in the extremities of the ship.

1172. Admiral *Yelverton.*] Where would you put the guns when not in action?—I should revolve them on the slide; the slide is 15 feet long, so that you would get the whole gun 15 feet further from the extremity of the ship. From my experience at sea, I do not in the least apprehend that the ship would be incapable of carrying and fighting these guns on all occasions when ships can engage with advantage.

1173. Is there sufficient space between the ports in the proposed plan to fight such heavy guns?—I consider there is sufficient room to do this much, to train each gun 30 degrees each way; I am not aware that there is sufficient room in any ship for extreme training adjacent guns opposite ways.

1174. Captain *Phillimore.*] Will you state what the distance is between the ports?—I have not the scale on the drawing, but it is about 16 feet.

1175. *Chairman.*] And the bulwarks would be 20 feet out of water?—Yes.

1176. Do you consider that height to be absolutely necessary to ensure a wholesome good dry sea-going ship liable to be forced against a strong trade wind or monsoon?—I consider that height as little as can be given, and if I was designing a ship not hampered by the restrictions which the Committee have put upon me, I should design a ship higher out of the water; but, with the dimensions that have been given me, I could do no better than that; I think 20 feet is the smallest amount that should be given to such a ship.

1177. Admiral *Yelverton.*] Do you apprehend any difficulty in securing the bow and stern guns in bad weather?—Not the slightest.

1178. *Chairman.*] I suppose they would be secured like the bow guns now in use?—Everything would be in proportion; we should secure the guns on the middle line of the ship, with strong pivots at each end, and cross lashings.

1179. Captain *Phillimore.*] How far does the belt come below the water?—The same as in the proposed design, I think, 4 feet or 4 feet 3 inches.

1180. Is there any thickness of armour-plating on the deck?—There is no armour-plating on the deck; but the deck level with the top of the armour plates has five-eighths iron and three-quarters stringers, I think; but that would be provided for as in other ships.

1181. This belt does not come above the level of the lower deck?—No, the deck and the belt are coincident.

1182. Captain *Caldwell.*] How far on the beam could the bow and stern guns fire?—The bow and stern guns would have a limited range; I do not suppose they could fire on the beam at all.

1183. Would they train 20 or 30 degrees on the bow?—Yes; they would not have more than 30 degrees training.

1184. Then it would be about 30 degrees training altogether?—I dare say it would be about that.

1185. Is there any dead angle of training when firing on the bow and quarter?—It would be so arranged that the head and stern guns would cross the line of fire from the foremost and aftermost *inboard* broadside port at a certain distance, I cannot quite say at what distance, but, at all events, at a considerable distance.

1186. *Chairman.*] The guns from the inboard broadside ports would fire within 15 degrees of the line of keel, I think?—I put it at 15.

1187. And the bow and stern guns will also have some training?—Yes.

1188. Captain *Caldwell.*] The bow port still being at a height of 10 feet above the water when steaming against a tolerable head sea, do you think that gun could be fought on the bow port?—I think so, so long as you could fight advantageously.

1189. It is only 10 feet out of water?—Yes; but the ship is only 225 feet long; the Committee must understand I do not recommend these dimensions, but with these dimensions that (*pointing to the drawing*), in my opinion, is as good a design as you could make; and it must be remembered that the bow of this ship is particularly designed to carry the gun in that place. Instead of the bow being, as it often is, long-shaped and overhanging, a great amount of buoyancy has been given below water by the form of the ship, and we expect and believe that the bow will be raised by the buoyancy given under water, very much more readily than in the old form of bow; and that the ship will not be wet in the same manner at her extremity as if the bow were designed of a different shape.

1190. Captain *Kennedy.*] In continuation of that, I should like to know whether your opinion is founded upon theory, or whether this plan has ever been tried?—I think it has, for the bows of the "Solferino" and "Magenta" have been formed precisely upon the principle that I have stated to the Committee; and when I was at Toulon I had the opportunity of ascertaining from the captain, and from the admiral on board the "Solferino," that in a heavy sea the bow of the ship was lifted out of the water and was always dry, and that at the commencement of the fore-chains the usual amount of spray and sea came over. I can also answer the question affirmatively in the case of the "Enterprise," a small ship, in which the bow is more nearly constructed upon the principle I have endeavoured to describe than any we have yet tried at sea, with the same remarkable result of extreme buoyancy and dryness forward.

1191. Captain *Phillimore.*] In measuring the length of your ship, do you take it along the keel, or along the upper deck?—When you say that a ship is 230 feet along, you take the length between the perpendiculars; we have compared this ship with Captain Coles' ship, and have included the length of the projecting bow as part of the length of the ship.

1192. Admiral *Yelverton.*] Could you fire with great elevation from your bow and stern with your 12-ton gun?—That would be provided for; the height of the port would admit of about 8 degrees of elevation.

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1193. Independently of the height of the port in elevating for parapet firing?—Yes; you would put in extra beams or carlings. I presume you would not fire any heavy gun at sea with more than 12 or 14 degrees of elevation; if you went up to 25 degrees you would have to add something to strengthen the deck in the form of extra beams, or pillars, or something of that sort.

1194. Captain *Kennedy.*] Can you give the Committee any opinion of the capability of an inch iron deck covered with 4½ inches of wood, to deflect shot?—I do not think any satisfactory experiment has ever been made to ascertain that point. The Iron Plate Committee did try with some small shot firing against inch plates; but in my opinion the experiments were not satisfactorily conducted.

[The Witness withdrew.

Adjourned.

Admiralty, Friday, 2 *June* 1865.

PRESENT:

Vice Admiral the Earl of LAUDERDALE, in the Chair.

Rear Admiral Yelverton.	Captain J. J. Kennedy.
Captain Caldwell.	Captain H. B. Phillimore.

J. SCOTT RUSSELL, Esq., called in; and further Examined.

J. S. Russell, Esq.

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1195. *Chairman.*] AT the last meeting you gave us your first impressions, upon looking at the designs and calculations of the sea-going turret-ship of Captain Coles, but you said that in order to give a decided opinion it was necessary for you to make the subject a matter of calculation, and then to give the Committee the result of your matured opinions, will you now be so good as to communicate them to us?—I have confirmed, by calculations, the opinion that a ship like this, of 4,000 tons displacement, is perfectly capable of carrying two turrets containing two 12-ton guns in each, and that the same weights which the ship carries could be so disposed as to carry these two turrets with, at least, all the good qualities of this vessel of Captain Coles, and I think that the dimensions of this vessel have been unfortunately chosen, because they are much too large for one turret and ill-disposed for two turrets.

1196. Barely enough for two?—Yes. The great mistake is in having taken the particular proportions of length to breadth of this ship. It is a length to breadth, which is quite out of the question for the mere purpose of carrying one turret, and being only about 4½ breadths to her length, she is in every way unsuited for the proper qualities for carrying two turrets.

1197. Then do you consider there is a considerable amount of spare displacement in that vessel when fitted with one turret?—I think there is a great deal of lost displacement in that vessel, that is to say, that a vessel of far smaller displacement would equally well carry and work one turret in a sea-going vessel.

1198. With the same speed?—Yes, with the same speed. The speed of this vessel, unfortunately, is not great, not at all what you expected, nor what I hoped when I saw her, might be the case.

1199. Do you, on further consideration, regard a second turret essential to a sea-going, cruising man-of-war?—I do. The first reason is, that the experience of the last American war has told me, as communicated by people engaged in that war, that a turret is quite liable to be disabled by a shot, or by a series of shots; and that a large vessel of 4,000 tons displacement should have no duplicate turret to work in case of one being disabled, appears to make it highly imprudent to build such a class of vessel. Then the second point is, that the distribution of such a vessel makes it extremely convenient to carry a turret towards the fore part of the middle body, and another turret towards the after part of the middle body. Therefore, in every case I would say, "Have two turrets," and neither more nor less. I think I may say that the experience of the Americans has led the wisest men I know in their navy to come to the same conclusion. They have tried three turrets, they have tried one turret, they have tried two turrets, and two turrets is the thing they would now, with their experience, limit it to.

1200. How do you find, upon calculation, the qualities of this ship turn out, with regard to stability, easy rolling and pitching, and other necessary sea-going qualities?—I find the midship section of this ship is not of the form most favourable to stability, and that a ship of the same bulk and displacement could easily have more stability given to her to carry more top weight in smooth water, and could easily have been made more steady than she now will be, and more easy in rough water. I should expect the roll of this ship as she now is formed to be long and deep. I may say also that in regard to the pitching, I find that she will pitch more heavily than I expected; and, in regard to both these qualities, pitching and rolling, they have arisen mainly from choosing the extreme shortness of the proportion of length to breadth.

1201. As to her speed, do you find that the speed of the ship, if propelled by 600-horse nominal power, will come up to Captain Coles' estimate, namely 13·8 knots?—No. I find that, even upon her trial trip, in smooth and still water, she would be at the least a knot and a-half slower than is calculated. She has a very large midship section, about 900 square feet, and both that large midship section and the shortness of the ship would bring her up in a sea-way, and make her very much slower in anything like a head-sea. The main faults of this ship I have been

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been able to trace almost entirely to the adoption of the short proportion of length to breadth. The proportion is less than five to one, and is quite out of the question for a vessel intended to have high speed under steam with good qualities. The consequences are the following:—The shortness has led to the adoption of a very full midship section. A midship section having an area of 145 square feet to drive through the water more than the Pallas with which the Committee desired me to compare the vessel. This excess of midship section renders the ship hard to drive through the water, and is also unfavourable to stability. What the ship requires is a smaller midship section, a longer middle body, and finer lines of entry, all of which are practicable with increased length, on the same displacement.

1202. Taking the proposed vessel as you see her laid down in the drawings, and as represented in the model, do you think that, with the same amount of materials which are used for armour-plating, turret, and guns, greater powers of attack and defence could be given?—Taking the same ship, and the same quantity of armour, and of turret, I could not contrive efficiently to protect this ship, and at the same time make a second turret and a second square box of armour on the upper deck, out of the weight given to me. I could only do so by a reconstruction of the ship herself, and a new disposition of the whole of her weights.

1203. By the question, it was not intended to confine you to the turret system alone, when the words "any other mode of armament" were put?—I consider this proportion of ship far better designed for carrying an ordinary fixed broadside battery than for carrying turrets, and I think that the weights of armour, turret, and guns given, could easily be so disposed as to form an efficient broadside ship, with of course a very considerably larger number of guns; I should say six large guns, easily. I should have no hesitation in carrying on the broadside in the ship, efficiently, six 12-ton guns.

1204. Three on each side?—Yes.

1205. Admiral *Yelverton.*] Not with the present armour plating?—No; you have allowed me the same weight, but you have allowed me to turn the turrets into armour-plating.

1206. *Chairman.*] Would such a ship in your opinion offer greater powers of attack and defence than the plan proposed by Captain Coles?—I must leave it to the Committee to say what ship will best answer their fighting purposes, but I will venture to say that it appears to me there are certain duties for which a turret-ship is far better adapted than a broadside ship. Supposing that, under the fire of a fort, I am obliged to follow a very winding course, with a turret-ship I could always keep my guns on my enemy, while the ship took any course which the channel might require. On the contrary, a broadside, while it is perfectly unobjectionable with the ship at liberty to keep her broadside always directed to the enemy, cannot act at many angles which might be the inevitable courses that the ship was obliged to keep. Therefore I cannot presume to say that a vessel armed with six broadside guns of a given weight is more or less useful than a vessel armed with two such guns in a turret.

1207. What do you consider the peculiar advantage of a turret gun, as compared to a broadside?—In the first place, the turret has the great advantage of pivoting the gun upon a centre, which is by far the best principle for the easy management and control of heavy weights like that of a very heavy gun of from 12 to 20 tons; but it is absolutely necessary when a gun is so pivoted on the centre that the port should be able to travel round with the gun. This travelling port the turret has; but it is impossible in the nature of a broadside armament, where the port must be fixed, and therefore the muzzle of the gun, instead of the centre of the gun, must be pivoted. Owing to this the broadside gun can only have a small angle of training, practically not more than 30 degrees each way. Therefore this angle of training, to a certain extent, controls the working of the ship, which in the turret system is left free all round. I think, however, there need be no doubt of successful mechanical means being applied to give training to the same weight of gun in a broadside port as can be carried in a turret. The Americans at present work the entire weight of their turret and gun by a small engine, the starting and reversing handle of which is in the hand of the captain of the gun, and the captain of a broadside gun might, by equivalent arrangements, turn it, either by steam power or hydraulic power, with perfect control and ease, whatever the weight of the gun. In America the captain of the gun has the starting and reversing handle in one hand and the trigger-line in the other, and the same thing might be done with a broadside gun.

1208. Admiral *Yelverton.*] What extra displacement would you require for a vessel to carry two turrets?—No larger displacement, but a redisposition of the ship, for I must beg strongly to state to the Committee that greater length could easily have been obtained in this ship without greater weight, and with an increase of every single good quality.

1209. *Chairman.*] Do you think that the collar upon which the turret is worked is sufficiently strong to stand the risk of breaking or derangement, in extreme cases, in a gale of wind when the ship is lurching very heavily or struck by the sea?—Yes; I think the dimensions here given are sufficiently strong, provided they are made of the best materials. I quite concede the necessity of having everywhere, if possible, some duplicate arrangement for security in case the first should give way, and that might be provided by having a flange on the deck plate, which flange might have a series of rollers from the turret going round it, which would bear upon the centre one in case of the central tube having given way; only I would suggest that such a precaution should be kept in near the centre, and should on no account be trusted to from near the outside, because the damage occasioned by shot would probably consist in distorting the turret near the outer edge, and in distorting the parts of the ship in contact with the turret.

1210. Do you think that a vessel of that displacement could be constructed and armour-plated with 6-inch armour, say about five feet up from the water-line the whole length, and armour-plated in the bow and stern, so as to carry four 12-ton guns amidships, and one 12-ton gun at each extremity?—As regards sea-going ships, it is the worst possible policy to carry heavy weights where they are not water-borne; to make a vessel fast, especially head to sea, the whole of the water-lines, even those which are above the water in still water, ought to be as fine as possible, therefore, they cannot carry heavy weights above them. The only way I know of carrying an iron-plated battery of one to two guns safely in the bow of such a ship, is to retire the line of the deck far enough back from the water-lines of the bow to make it water-borne. At the stern of a ship it is much easier to form the water-line so as to carry heavy weights, and I think the stern of a ship could be easily designed to carry two of the largest guns protected by armour-plate, pointing aft, in a line with the keel. Permit me to mention what are the disadvantages of the tumble-home bow. When the bow of a vessel is extremely fine the tumble-home has no objection, and contributes to make a dry wholesome vessel, but in a full bowed vessel the tumble-home has a great disadvantage, namely, that in a sea-way, in a head-sea especially, just when you want to go a-head the way of the ship is stopped, and is stopped by a bluff part of the bow coming into the water, and I mention that because I think some disadvantages would be encountered by not taking due notice of this. If you will take a vessel which has already a tolerably full entrance in the water, and you gradually tumble home that part of the bow which is to fall into the water when she is in a sea-way, you make a form of bow which will be very abruptly brought up in speed in a head-sea. Great care must be taken, therefore, that the tumble-home bow should not be carried too far, especially in a vessel in which the water-lines are already full.

1211. What do you consider to be a necessary height for a vessel of that tonnage, namely, 2,400 tons, builders' measurement, to render her a wholesome dry vessel when forced against a strong trade wind or monsoon?—For the deck of a merchant ship, the minimum height out of the water should exceed one-eighth part of the beam; for a ship of war, I considered, in designing the "Warrior," that the same principle should hold with reference to the port sill. One-eighth of the beam of the "Warrior" may be taken in round numbers as eight feet, and, therefore, in my original design I fixed upon nine feet as the minimum height of port out of the water. If to that you add four feet, you get 13 as the height of the deck for the "Warrior" class. In a ship of 48 feet beam, the minimum height of port would be six feet out of the water, and adding one foot to it, as in the case of the "Warrior," it would make seven feet out of the water the minimum height of port, and 11 feet out of water as the height of the deck.

1212. Captain *Phillimore.*] That would be for a ship not armour-plated?—The "Warrior" is armour-plated; I have taken nine feet in the one case, and seven feet in the other, seven feet in the smaller vessel and nine feet in the larger.

1213. Do you think the smaller vessel would carry her ports out of the water longer than the "Warrior"?—Yes, if with the same height of port. I am taking them as heeling over to the same angle. We consider seven degrees as about the angle of heel for a ship of war carrying sail; then it must be remembered that the smaller ship lifts easier and quicker to the sea than a larger ship.

1214. That is supposing she is armour-plated in proportion?—Yes; we will take them in proportion.

1215. *Chairman.*] That ship's deck is 10 feet out of the water?—That is sufficiently high according to these proportions. These proportions would give you 11 feet as the height of deck; but allow me to observe in reference to this point, that if you could sacrifice the comfort of the crew entirely, and let the sea roll over a deck without bulwarks, you could get far greater stability of platform by that means than by any other, and the way in which that might be practically done is this, if the entire battery, as in Captain Coles' ship, could be made central and water-tight, and the sea allowed to flow over it as in the "Royal Sovereign," and in the American "Monitors," you would in that way get the greatest possible stability of platform. However, it would be one good quality got at the expense of a great many others.

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1216. Captain *Phillimore.*] How high ought the bulwarks in a merchant ship, of the same tonnage as the ship proposed by Captain Coles, to be, from the top of the bulwarks to the water line?—I may say that we generally spring the beam forward three feet higher than amidships, which taking the height of deck, 11 feet out of the water, would give 14 feet for the height of the same deck out of water at the bow, and if to that you add four feet six inches, then the height of bulwark out of water at the bow would be 18 feet six inches; but it is not usual to spring war vessels forward nearly to the same extent as we do merchant vessels. The actual height of the design appears to be 17 feet 6 inches, and it may be observed that there is a considerable spring on the bulwark of the vessel.

1217. Admiral *Yelverton.*] I should like to ask your opinion as to the ventilation of the proposed ship?—I see all the usual arrangements for the ventilation of a ship quite as effectually as it is generally done, but I would say that for armour-plated ships there ought to be a fighting ventilation quite independent of ordinary ventilation, and a fighting ventilation ought to be by the actual forcing of fresh air by mechanical means through the batteries and other confined parts of the ship. The air to be forced could be fetched down the iron masts, or what would perhaps be better, ought to be fetched down iron funnels, or ventilators, rising to a considerable height above the deck.

1218. Captain *Kennedy.*] In this two-turret-ship of yours that you suggested, is it kept in view that she is to have 6-inch armour?—Yes; I take 6-inch armour.

1219. Is she to be completely armoured round, or are the bows and stern to be left unprotected?—I think the thin parts of the bows certainly left unprotected.

1220. And astern?—And astern certainly protected, in the region of the steering apparatus.

1221. Any thwart-ship bulk-heads?—I think so. I propose having a considerable size of thwart-ship bulk-heads for the protection of the ship from raking fire.

1222. And the deck protected in any way?—I think so. I think an iron deck, at least an inch thick, would be absolutely necessary.

1223. Captain *Phillimore.*] In calculating the weights, what breadth of belt did you calculate for?—I think that wherever there is armour plating, it ought to comprehend the between decks, and it must always be eight feet wide. I would never, therefore, have a belt narrower than to comprehend the entire between decks.

1224. In making your calculations, as regarded the weight of armour-plating the ship would carry, *J. S. Russell,* Esq.

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carry, what breadth of belt did you allow for, and how much length?—Never less than eight feet.

1225. And the length?—The length includes the battery, the battery comprehends the two turrets that are on the upper deck, the fighting deck. I calculate the belt to comprehend the whole length of engine-room, magazines, and forward to the foremast.

1226. About how many feet?—I have not had time to make a special plan for this; but I have by me a number of plans of vessels of this sort in which I have made similar calculations, and from those plans and designs which are all considerably longer than this, I am able to state that two turrets, and what I regard as complete protection, are obtained by 900 tons of turrets, guns, and armour, and that 900 tons protects the stern, protects the whole midships of the section on one deck, and protects the two turrets and the upper or fighting deck, but that is all. I have never used more than 5-inch armour in my calculations. Allow me to say also that I spare weight enough out of the weight of the hull to get the additional quantity of armour and turret.

1227. *Chairman.*] On referring to Question 579, you will see that you were requested to state the advantages and disadvantages of the turret-ship as a sea-going cruiser; you have given the Committee the advantages, but you said nothing as to the disadvantages that you might be aware of, or that might have struck you, or are there any?—I have said that I thought the advantages of the turret system were limited to the employment of two turrets. I think it has disadvantages whenever you go further than two turrets, because the same quantity of material which would be required for a third turret might be much more advantageously employed in enclosing a broadside of guns, by which two turrets might be connected. It is also obvious that the third turret is prevented by the other two from having a complete circle of fire. The obvious disadvantage of the turret system is the large mass of weight which has to be carried and moved beyond the weight of the gun itself. It is only the fact of all the guns in the two turrets being able to command both broadsides, and the sweep all round the two ends of the ship, that makes the turret system valuable; where the number of guns is large, any given weight of ship and armour will carry many more guns without turrets than with.

[The Witness withdrew.

Adjourned.

Admiralty, Friday, 16 *June* 1865.

PRESENT:

Vice Admiral the Earl of LAUDERDALE, in the Chair.

Rear Admiral Yelverton.
Captain Caldwell.
Captain J. J. Kennedy.
Captain H. B. Phillimore.

Captain ASTLEY COOPER KEY, C.B., called in; and further Examined.

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1228. *Chairman.*] I THINK you have been out in the "Royal Sovereign" since you were last examined here?—Yes; I was out on Wednesday and Thursday last week.

1229. And have fired many rounds from the turret with shot, I think?—Yes; I have fired from the three foremost guns; that is, the two guns in the foremost turret, and the gun in the second turret. I fired about sixty rounds a gun.

1230. From the experiments you then made, and the opportunities you then had of seeing the effect and working of the turrets, have you any reason to modify or alter your opinion upon any of the points alluded to in your previous evidence, or can you give the Committee any further information as to the efficiency of the turret system?—I certainly have had reason to modify my opinion upon one or two points. At the time of my previous examination I felt satisfied that in laying the gun at sea there would always be considerable delay and liability to error in giving the proper elevation to the gun, making allowance for the list or roll; but from the experience I have now had in firing these guns with so many rounds with the ship under most disadvantageous circumstances as regards the pointing of the gun, as she was rolling only from two to three degrees, and sometimes not rolling at all, I feel satisfied that the occasions would be very rare indeed upon which you could not fire these guns when the ship is upright, and therefore you would have no occasion to make any alteration in the elevation, except that which would be due to range. The ship does not carry sail, she has no taunt masts, no weight aloft; her weights are all in the midship portion of the ship; and there is nothing that could cause her to have a permanent list to any extent.

1231. Would your observation apply equally to the proposed sea-going fully-rigged turret-ship?—It would not apply with so much force to a ship that was rigged, where, under certain circumstances, whether she had sails set or not, she would certainly list; and wherever the ship has a list, there will probably be some little delay in giving the proper elevation.

1232. Then when a ship is under sail a-beam, or on the wind, her motion or her heel is always varying; that is to say, the wind is never for two minutes in exactly the same force, if the sea strikes her weather side with the exact same wind, she heels more, and then she comes up again; if you lay your gun to the horizon, and carefully look at the effect, you will see that it is so, it is constantly altering, yet that cannot be called a rolling motion?—I should say the amount of roll is constantly varying; there

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is no doubt that, if the ship is under sail, and the heel of the ship, therefore, changing with the strength or direction of the wind, there will be more risk of delay in giving the proper elevation to the gun. I would also say, in continuation of my answer to the former question, that I fired the two foremost guns at extreme training, also at extreme elevation, and with as much depression as the form of the deck would allow, without causing damage to any part of the fittings or of the ship, and the planking of the deck scarcely shows now where we were firing.

1233. Will you be so good as to state the number of degrees of depression or elevation?—We fired at 18 degrees elevation, and four degrees depression; the shot just cleared the deck. In firing canister shot, the shot at four degrees depression struck the water about 15 yards from the ship; I fired both case and round shot.

1234. At that depression, was it on the beam, or at what angle?—On the beam; I also fired two shots right ahead in the line with the keel, believing that, as the shot would have to pass on each side of a bitt-head, and of the ventilating funnel in the stem of the ship, close to each of them, it was likely they might be, to a certain extent, shaken; but no damage whatever was done to them.

1235. Were they rifled shot?—No; 150-lb. shot, with 40-lb. charges.

1236. Smooth-bored shot; what weight?—One hundred and fifty pound shot, round shot, with 40-lb. charges.

1237. Admiral *Yelverton*.] What is the weight of the two foremost guns?—They are all the same, 12-ton guns; there are five 12-ton guns.

1238. *Chairman*.] During your practice were the anchors on the deck, or were they lowered down clear of the line of the fire entirely?—They were carried in the usual position in which they are secured in harbour. The anchor-stock and the fluke of the anchor were showing above the deck, and of course we took care that the training of the guns should clear the anchor-stock.

1239. Do you think that the anchors could be carried in that position, and sufficiently secured at sea, in preparing for the heaviest weather, as ships do when they are supposed to be going to encounter bad weather?—In the way in which the "Royal Sovereign's" anchors were secured when she was out on her trial the other day, if they were properly lashed and secured they could be carried there in any weather, but if it were in contemplation to lower them down in going into action, I do not think they could be carried lower down in a sea-way at all. In that way in which they were secured the other day they offered very little impediment to our range. They were firmly fixed on the bill-board and close up to the ship's side; the fluke was on the deck, and the shank of the anchor close to the ship's side. If you ease it off and lower it down, then no doubt it could not be carried in a seaway.

1240. The stock of the anchor was lashed to a ring-bolt in the deck, I suppose?—Yes, it was.

1241. The ship was not rolling heavily when this practice was going on, was it?—No; the water was almost perfectly smooth, the ship was rolling about three degrees.

1242. Are you still of opinion that heavy guns, namely, of 12 tons or upwards, say as far as 22 tons, could be carried as securely and fought as efficiently on the broadside as in the turret-ship?—I can give no opinion as regards guns over 12 tons.

1243. Of course, when I say fought as efficiently, I mean fired as quickly and with as much safety, and pointed as well?—I have already stated in my evidence that I have no hesitation in saying we should be able to work a 12-ton gun on the broadside in a sea-way, but until I have had experience of that I could not give any opinion about any heavier gun. I am the more confirmed in my view of the possibility of working a 12-ton gun in a sea-way from the experience I had in the "Research" yesterday. We had a 6½-ton gun mounted on a carriage with various improvements, made with the special view of working that gun; and from the perfect simplicity and ease with which that gun was worked in the whole of the practice, I am perfectly satisfied that no difficulty will be found in working the 12-ton gun on the broadside. That is a conclusion I draw from the alterations and improvements made in the gun-carriage with that special object.

1244. Would that system equally apply to large guns as well as small ones?—When you try anything new of course difficulties arise which one cannot foresee, and until we have knocked about these 12-ton guns in a sea-way, which I dare say will open our eyes a little, I should not like to give a decided opinion.

1245. Did you fire the guns simultaneously in the "Royal Sovereign"?—In firing the two guns from the foremost turret, I directed them to be fired simultaneously to avoid the danger which the man at the other port would incur, from the explosion of the gun close to him, and also to relieve him from the concussion that he always felt when so close to the port if he was loading at the time the other gun was firing. No difficulty was found in firing the guns simultaneously. The captain of the turret, when his object was on, pulled both trigger lines at the same time, and the working of the guns in every particular was carried on simultaneously.

1246. Have you any reason to suppose that if rifled shot of the same weight, or much heavier rifled shot was fired, it would affect the deck?—If the same charge was placed behind a heavier shot, I have no doubt that the gas being more confined would rush out with somewhat greater force, and therefore the deck might be in a slight degree more damaged by the explosion, but as there was no damage at all done by the 40-pound charge, I cannot conceive that any appreciable increase would be found in firing the heavier shot; I cannot understand how the shot itself could injure the ship at all, if it goes clear.

1247. Captain *Caldwell*.] What length of deck did you fire over?—Thirty-six feet.

1248. Were there any complaints, or did you observe any objectionable effects from the concussion on the men in the turret, when the guns were fired?—The only circumstance under which the concussion was felt inside the turret, was in the second turret, when the foremost turret was trained extreme aft, and firing both guns simultaneously, then the concussion inside the second turret was inconvenient, but it in no way prevented the men from remaining there, or prevented them from working the gun. I felt it myself, but I am accustomed to it a good deal.

1249. *Chairman*.] Was the port in the second turret turned towards the other one, or quite away from it?—In this case the port in the second turret was trained from it; if it had been turned more towards it, I dare say the concussion would have been greater still; I mean, if the two ports

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ports had been laid towards each other, it would have been much worse, but of course the natural thing would be that the ports should be away from each other. I should add, in connection with the former question, that upon the whole, from the experience I gained in working the turrets the other day at sea in the "Royal Sovereign," I am more satisfied than I was of the ease of working the gun, as to the perfect arrangement of pointing the gun, and as to security from accident. The pointing of the gun was very beautiful, both as regards its facility and great command of training.

1250. Captain *Caldwell.*] About what number of men are required to work the guns in the double turret?—At the last trial the turret and guns were not properly fitted for working in a sea-way, and until the winches are fitted, which are now being made, I cannot say what number of men would be required to work each gun; but I have no doubt the number can be reduced from 30 men, as it is at present, to 20 for each gun, with the winches they are now fitting, and I dare say even fewer than that.

1251. *Chairman.*] Are you still of opinion that the 12-ton guns, or guns of 12 tons and upwards, can be worked with greater rapidity on the broadside?—No; from my late experience, in which I found the facility of working the guns in the turret greater than I expected, I should say that the rapidity of working would be about the same, but probably under ordinary circumstances somewhat in favour of the broadside. The latter has the advantage in quickness of loading, the former in pointing.

1252. You have stated that in firing with 150-lb. shot and 40-lb. charge, there was no injury whatever to the fittings or coamings; do you think that they would stand the discharge from a much heavier gun with double the weight of shot?—Of course, one may assume that a larger charge of powder will cause greater concussion, and therefore there would be greater liability to damage the deck, but in the "Royal Sovereign" the ports are placed exactly on a level with the upper part of the deck, and the upper-deck is thus brought too close to the guns. The deck should be at least a foot or a foot and a-half below the port, that would relieve to a considerable amount the deck from the concussion; when firing the 12-ton guns under the circumstances stated at four degrees depression, which is as much as the deck will allow, the men's basins and plates were in their places at the mess-table in their berths, and the men were sitting at the table themselves, and no inconvenience was experienced; we did not warn them we were going to fire, and not a thing was shaken or broken.

1253. Admiral *Yelverton.*] There was no crockery broken?—Nothing was broken.

1254. *Chairman.*] But, as we presume that in a sea-going ship the coamings and the hatches on the upper deck would be required to be of more than ordinary height in a turret-ship to be of any use to keep the water out, do you think that, under these circumstances, if fitted in the usual way, that they would stand the concussion, particularly in a one-turret-ship where there would be a large extent of motion?—In the "Royal Sovereign" the coamings are unusually high, and fully as high as would be required; in a sea-going ship you could not have them with any convenience higher, but as the hatchways are in midships, it is on the extreme training only that the gun is fired near them. It would not be fired over them. I think, under any circumstances, it is only in extreme training that the gun is pointed near them, and if properly secured with cap scuttles you might fire over them without damaging them.

1255. Captain *Kennedy.*] What time would it take to load and fire the 300-pounder in the double and single turret?—The shortest interval between any two rounds was in the single turret; it was one minute and 22 seconds. The average time of firing 10 rounds is shown in the following table. The best 10 consecutive rounds have been selected in each case:—

Round.	Double Turret.	Single Turret.
	Interval.	Interval.
1	′ ″ 1 48	′ ″ 1 49
2	1 49	1 51
3	1 59	1 51
4	2 1	1 55
5	1 49	1 44
6	1 43	1 25
7	1 48	1 22
8	2 6	1 43
9	1 51	1 39
10	2 5	1 54
Mean - - -	1′ 54″	1′ 43″

1256. *Chairman.*] Do you think that having two such heavy guns as 12-ton guns, or guns of twice the weight, they could be nearly as efficiently worked in one turret as if they were in separate turrets?—The turret containing a single gun will certainly be worked quicker and with more steadiness than that containing two guns, for the men are more crowded, and the guns and gun-gear are in a confined space; but, still, the advantage of having two guns in one turret is so great, by increasing the power of its armament with a very little additional weight to the ship, that I am in favour of having two guns in one turret, for there is no doubt they would fire two shots far quicker than a single turret would.

1257. Than two single turrets?—No, than one single turret; although the single turret has the advantage of rapidity, yet it cannot certainly get a second round before you would get two rounds in the double gun turret.

1258. If the guns are fired simultaneously it makes them almost as if they were one gun, does it not?—It makes the time of firing simply the time of the slowest gun; but on account of the small space and the greater crowding of the men from their only being able to get at one side of each gun, of course each gun is worked slower: you lose something, but it is not much.

1259. Admiral *Yelverton.*] Supposing you had a turret-ship carrying two turrets capable of carrying two 12-ton guns in each turret, which should you prefer having, one 22-ton gun in each turret or two 12-ton guns in each turret for general service?—Looking at the construction of ships of war at the present day, and the thickness of

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of their armour-plating, I should certainly prefer two 300-pounders in one turret; two 12-ton guns to one 22-ton gun, because you would then have the same weight and power of shell at each discharge, the smaller guns would be worked with greater rapidity, and in case one was disabled you would have the second one to fall back upon.

1260. *Chairman.*] If the gun was to be worked and loaded and the shot handled by machinery, do you think there would be necessarily any great difference in the length of time in loading and firing except the extra length of ramming home that the larger gun would have?—I think, under similar circumstances, a heavier gun and heavier projectile must always be worked slower than a smaller one. There is no doubt if machinery be applied to both guns the smaller gun would not have so much greater advantage in rapidity as the heavier gun, as it would have when worked by hand; by machinery you might bring them up pretty nearly to the same point.

1261. Captain *Caldwell.*] The system of pointing the turret being different in some degree from that of an ordinary gun, would the captain of the turret require any special training to acquire the practice of firing, more than the captain of an ordinary gun?—The mode of pointing is so extremely simple that if any man of ordinary ability had been trained to the working of a gun on the broadside he would be able to point the turret with great ease at once. On the last day we were out in the "Royal Sovereign" the captain of the second turret had never fired the gun before, but he pointed with great facility from his second round, and fired the gun with great accuracy and precision the whole day.

1262. With a 300-pounder mounted on the broadside, will the port admit of as much elevation as that of a turret?—The 12-ton gun in the turret was fired the other day at 18 degrees elevation, which is six degrees more than the port will allow for the gun to come in clear. The platform was then on its lowest step. It took 17 minutes to lower the platform from its usual fighting position to the lowest step, and from that position, when on its lowest step, the port will allow 12 degrees elevation. On a broadside the gun could, of course, be fired with the muzzle above the port, in the same manner as it was on board the "Royal Sovereign;" but I do not expect that, under any circumstances, more than 15 or 16 degrees could be obtained, although the port would allow 11 or 12 degrees.

1263. Captain *Kennedy.*] What is your experience in your late firing, of the hinge-bulwarks under the fire of your own guns?—It was lowered down with great ease, and it was not in any way damaged by the firing.

1264. As the captain of the turret is much exposed, could he be protected in any way?—It would be no use attempting to protect him from the effect of heavy shot, but I think he ought to be more protected than he is now from rifle shot, the shield should entirely cover his head and shoulders; but, under any circumstances, he would feel himself the most exposed man in the ship.

1265. In firing on the broadside with little motion, is it not the case that the guns along the deck being fired independently is the chief cause of the necessity of using the quoin frequently?—If the ship has any rolling motion at all the gun is laid by a marked quoin to that elevation that the ship is most likely to reach at every roll. If her motion is regular the gun would be laid horizontal and there would be no occasion to move the quoin again if it had not shifted, unless something took place to give the ship a permanent list. In ships armed on the broadside this is very likely to take place, in consequence of many of the guns being run in, or the men manning the opposite side of the ship, or from any increase in the strength of the wind, or from making and shortening sail, and various other circumstances.

1266. Does not that show the great advantage of the turret or central system over the broadside?—I can scarcely go so far as to say it shows the great advantage of the turret system over the broadside, because the question of shifting the elevation of the broadside gun is such a very trifling operation that no delay is caused by it.

1267. Captain *Phillimore.*] In clearing for action in the turret-ship, are you aware of any other thing that would cause delay besides letting the bulwarks down and getting the anchors off the upper deck out of the line of fire more than in a broadside ship?—In a turret-ship intended only for a harbour ship the upper deck, of course, would be kept perfectly clear, there would be no occasion to put anything upon it beyond the permanent fittings; but in a sea-going full-rigged ship it is probable that you would have to get the ropes out of the way, and the gear for securing the boom boats would probably occupy more space. Then the scuttles, hatchways, and skylights must have the hatches over them and be screwed firmly down. The bulwarks again must be much more firmly secured than those in a harbour ship, but beyond that I see no reason why a sea-going ship, if you sacrifice the convenience of having the boats, and the spare spars, and other gear on the upper deck, should not be cleared for action very quickly.

1268. In comparison with a broadside ship, how much longer or shorter do you suppose she would be in clearing for action, taking all things in consideration generally?—I could give no opinion as to the comparative time that would be taken in a broadside ship and in a turret-ship; but, looking at all the circumstances, I should say it would take longer at night, in a sea-going turret-ship to clear for action than it would in an ordinary broadside ship; in the turret-ship everything must be cleared off the upper deck before a gun can be fired.

1269. With two ships armed as follows, one with two 12-ton guns on each broadside, and the other with two 12-ton guns in one turret, which do you consider would fire a greater number of rounds in a given time at a three-decker at sea, within point blank range, supposing the system of rapid horizontal firing was resorted to in both cases?—Under the circumstances you speak of, having two guns in each case, with rapid horizontal firing, where the pointing would not be required to any great amount, I should say that the two guns on the broadside would fire the quickest, and there is no doubt of the great advantage they would have if they had two objects to fire at at the same time, one on each side.

1270. Supposing both ships were going fast through the water, and rolling, and the water was coming in at the ports at a moderate amount, would you still be of the same opinion?—A small amount of sea would not impede the working of the

Captain *A. C. Key*, C.B.

16 June 1865.

the guns in either case. I do not think there would be much to choose between the broadside ship and the "Royal Sovereign," as the "Royal Sovereign" is now fitted with regard to the water that would run into the ports; the lower ports of the "Royal Sovereign" are on a level with the upper deck, therefore a large quantity of water would find its way in; but if the deck was lowered about a foot, I think the advantage in that respect would rest on the side of the turret-ship.

1271. Supposing that the two 12-ton guns were in separate turrets, would you still be of the same opinion?—They would no doubt fire quicker in the single turret than the two guns in the double turret, but I still think that, where no pointing is required, the advantage in rapidity would be in favour of the broadside gun, the men stand so much fairer to their work.

1272. Can you recollect about what height the "Royal Sovereign's" anchors at the bow are from the water-line?—I think about seven or eight feet.

1273. As regards the pointing the other day at sea, in the "Royal Sovereign," what kind of practice did you make at the targets?—Very good.

1274. Do you consider it as good as was made from the "Research"?—I should say about the same in both cases; it was very good, the motion of the ships being about the same.

1275. Do you think that the sights of the turret are liable in the course of time, from wear, to get untrue as regards the actual position of the axis of the gun?—I should say that as long as the platform upon which the gun is mounted is of wood that is liable to take place, but if they are made of iron there would be very little chance of deviation from the true line; at all events it is a point that should be carefully looked into after a certain amount of firing.

1276. Admiral *Yelverton.*] Since you have last been before the Committee you have naturally turned your mind to the subject of turret-ships; have you seen anything to alter your opinion as to the advantage or disadvantage of the turret system as applicable to a sea-going ship?—The experience I have had lately has not induced me to alter the opinion I formerly expressed as regards its applicability to a sea-going ship, but it has certainly, as I have stated before, shown that the guns can be worked with greater facility and pointed with greater accuracy than I had previously contemplated. I feel now thoroughly satisfied with the ease of working and accurate firing of the guns in turrets, but that appears to me to be a separate question from its applicability to a sea-going ship.

[The Witness withdrew.
Adjourned.

APPENDIX.

Appendix.

LIST of Papers printed in the Appendix.

No.	Date.		Page.
	1865:		
1	3 April	Letter from Captain Coles in explanation of the design of the sea-going turret-ship, and enclosing a general description of the proposed ship, with statements of her dimensions, stowage, and estimated weight of stores, &c. - - - - - -	97
2	28 „ -	Admiralty letter enclosing copy of a Report, dated 26 April 1865, from the Controller of the Navy, on Captain Coles' design for sea-going turret-ship - -	101
3	8 May -	Actual weight of turrets, &c., as fitted in "Royal Sovereign" - - - -	103
4	13 June -	Letter from Chairman of Committee to Secretary of Admiralty, enclosing correspondence respecting Captain Coles' inability to attend before the Committee, or to name any person to represent him, and respecting objections to his design; and requesting instructions as to what further proceedings the Committee are to take - - - - - - - - - - - - - - - - - - (For schedule of Enclosures, *see* page 104 of Appendix.)	103
5	15 „ -	Admiralty letter, in reply to the above, requesting the Committee now to proceed to make their Report - - - - - - - - - - - - - - -	108
6	5 „ -	Paper transmitted to Captain Coles, stating objections to the design of the sea-going turret-ship which had occurred to the Committee, and been alluded to by witnesses in the course of their evidence - - - - - - - - - -	108
7	22 „ -	Letter from Chairman of Committee to Secretary of Admiralty, enclosing copy of a letter, dated 20th instant, from Captain Coles, again appealing to the Committee to give him the fullest opportunities of defending his inventions - - - -	110
8	24 „ -	Admiralty letter, in reply to the above, enclosing copy of a letter addressed to Captain Coles - - - - - - - - - - - - - - - -	111

— No. 1. —

Sea-going Turret-ship.

Sir, Yarborough Villa, Ventnor, 3 April 1865.

I have the honour to enclose you drawings of a vessel of the same class as the "Pallas," which I hope may meet their Lordships' wishes, contained in your letter of the 24th last November, pointing out that they were desirous of obtaining "a ship combining an armament of the heaviest guns with high speed and good sea-going qualities."

My directions to their draughtsman, Mr. Scullard, have been to fulfil these conditions, and he assures me that this ship will have a speed of 13·8 knots, carrying two 600-pounders. On the plans are also shown two 300-pounders and four smaller guns; but this plan I think out of the question.

This vessel has a belt which differs from the one proposed by me in 1861, inasmuch that it does not extend the whole length of the ship, but ends 25 feet from the stem, where the plating is run across on a thwart-ship bulkhead; by this arrangement, having only to plate a distance of 27 feet, instead of both bows (28 feet 6 inches × 2 = 57 feet), there is a saving of weight, as well as keeping the weights from the extreme of the bow, which will improve her as a sea-boat without diminishing materially her defensive powers.

The portion of the bow before the belt is in cellular compartments, which would be much more unsinkable than if plated with only 4 and 3-inch iron.

This vessel's belt stops 25 feet from the stem; but I believe keeping all vessels' bows light, particularly those with fine lines, is of so much importance, that in some cases I would leave the belt off altogether before the box, trusting to water-tight compartments for the fore-end, merely retaining the belt aft to protect the rudder-head and steering apparatus, and trimming the ship by the position of the box and turrets.

The armour-plating and backing of this vessel is equal in strength to that of the "Bellerophon," with 1-inch plating on her decks; and, supposing that Mr. Scullard is right in his calculations as to her being able to carry it with a speed of 13·8 knots, she will be a most formidable vessel.

With reference to the tonnage of this vessel and the "Pallas's," it will be seen they are nearly of the same dimensions; but, although the turret-ship has less beam, and draws 1 foot 9 inches less water, she is apparently 37 tons larger: this arises from the different mode of measuring wooden and iron ships for tonnage, as explained by the accompanying description of the turret-ship made by Mr. Scullard, which shows that this ship, being built of iron, measures 2,409 tons; but if she were built of wood she would measure only 2,193 tons, or 216 tons less.

The general dimensions, &c., are—

	Pallas.		Turret-ship.	
	Ft.	*in.*	*Ft.*	*in.*
Length between perpendiculars	225	0	225	0
„ of keel for tonnage	187	0	187	8⅝
Breadth, extreme	50	0	49	0
„ for tonnage	48	9	48	10
„ moulded	48	1	—	
Depth in hold	16	5	20	2
Draught of water	24	3	22	6
Burthen in tons (builders)	2,372		2,409	
Difference, 37 tons.				
Thickness of armonr	4½ inches		6 inches	
Armaments	4 100-pounders 2 110-pounders		2 600-pounders	
Weight of broadsides	310 lbs.		1,200 lbs.	

It is for their Lordships to decide whether this vessel meets their views; I am strongly in favour of the 600-pounders, and although her guns would be the heaviest yet made in this country, it may appear that only two guns for a vessel of 2,400 tons is disproportionate. Considering this, I am prepared to produce drawings of a vessel of the same speed, but having double the offensive powers, viz., four 600-pounders; when I find it only necessary to increase her tonnage to 3,400 tons, or one-half more.

I have thought it right to mention this, in case their Lordships might deem the 2,400-ton vessel too expensive in comparison to the armament, or in case it should be thought she should not possess the speed estimated by their draughtsman.

Being no shipbuilder, on these points I can give no opinion; but I beg to bear testimony to Mr. Scullard's having shown the greatest desire to meet my views, and as far as I can judge, every and all credit is due to him for the accompanying designs, which I now submit, relying upon their Lordships' promise of insuring an impartial and unbiassed examination of their merits, and, in conclusion, I have respectfully to request that I may be made acquainted with any objections that may present themselves.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C.B.,
&c. &c. &c.

A General Description of the Sea-going Turret-ship.

Armament.

To carry Two 600-pounders; or Two 300-pounders, and Four 100-pounders.

Armour Plating.

To have an armour belt, two feet above and four feet below the water line, to be six inches in thickness for about 100 feet in midships, and then to taper forward to 4½ inches, and abaft to three inches, under the buttock, two inches.

The armour plating above the belt in wake of the turret to be six inches thick, and to be about 37 feet long.

To have an armour bulk-head at each end of box, composed of 5-inch iron on 10 inches of wood, and lined on the inside with a skin five-eighths thick.

At the fore-end of the armour belt a transverse armour bulk-head is to be fitted, and composed of 4½-inch iron on 10 inches wood, secured to an iron bulk-head of the ship.

Wood back ingfor armour belt 10 inches thick, worked longitudinally on the skin plating, and three angle irons 10″ × 3½″ × ½″ worked horizontally between the edges of the wood backing and secured to the skin plating and angle iron frames of the ship. The wood backing above the belt in wake of turret to be 10 inches thick, worked vertically.

The lower deck beams are to be covered with 1-inch plating from the foremost armour bulk-head of box to the fore-end of belt, and to terminate at the 4½-inch armour of the foremost transverse bulk-head, or it may be carried forward to the stem, also from the after armour bulk-head of box to the stern of the ship. The top of the box, on the upper deck beams, is also to be covered with 1-inch plating from armour bulk-head to armour bulk-head.

Frames

Frames behind Armour.

The frames of the ship behind the armour plating are composed of angle irons 10″ × 3½″ × ½″ with two angle irons 3½″ × 3½″ × ½″ on the outside edge of each, the three being riveted together, composing one frame; and to the double angle irons of the frames the skin is secured. These frames are placed two feet apart from centre to centre. The skin is in two thicknesses, each ¾-inch thick, making together 1½ inch, and between them is placed a layer of painted canvas.

Water-tight Compartments.

The bow of the ship, the foreside of the armour belt, and foremost transverse bulk-head, is divided into numerous water-tight compartments, also at the stern, in the vicinity of the tube for the screw shaft. The hold is divided into numerous compartments, and vertical longitudinal skin is worked, leaving a wing passage on both sides of the ship, and this wing passage is made into water-tight divisions of about 20 feet each by athwart-ship bulk-heads, and these are fitted with water-tight man-hole doors.

Tonnage of the Ship.

The ship being constructed of iron, in calculating the tonnage by builders' old rule, the whole breadth is taken, whereas if the ship had been constructed of wood, the average thickness of the plank of the bottom would be taken and added to her moulded breadth, gives the breadth for tonnage, so that the excess of the thickness of the wales above the thickness of bottom plank is deducted, thus :—

	Iron Ship.		Wood Ship.	
	Ft.	*in.*	*Ft.*	*in.*
Length for tonnage	187	8⅝	191	8
Breadth, extreme	49	0	49	0
„ for tonnage	48	10	47	5
Burthen	2,409 tons		2,193 tons.	

(signed) *Joseph Scullard,*
Head Draughtsman, Portsmouth Dockyard.

Dimensions, Stowage, &c., of the Sea-going Turret-ship proposed by Captain *C. P. Coles*, R.N.

Dimensions—	
Length between the perpendiculars	225 ft. 0 in.
Breadth, extreme	49 „ 0 „
Depth in hold	20 „ 2 „
Burthen	2,409 $\frac{52}{94}$ tons.
Draught of water—	
Forward	20 ft. 0 in.
Aft	22 „ 6 „
Displacement	3,996 tons.
Horse-power of engines—	
Nominal	600
Indicator	3,600
Speed in knots	13·825
Immersion per inch at load line	22·26 tons.
Area of sails in square feet	26,620
Height of centre of effort above load water-line	62·5
Distance of ditto before centre of gravity of vertical longitudinal section.	13·6

Summary of Weights.

	Tons.
Weight of armour plating in belt	265
„ „ on sides above belt	60
„ „ on bulk-heads (5 in. thick)	60
„ „ on foremost bulk-head (4½ in. thick)	22
„ wood backing, 10 in. thick, in belt	60
„ „ „ on sides above belt	12
„ „ „ and angle irons in bulk-heads	25
„ „ „ „ forward	10
Weight of 1-inch plating on extremities of lower deck and on box	150
Total Armour and Backing	664

Appendix.

	Tons.
Turret complete and glacis plates	127
Turret fittings on deck, iron pillars, &c.	19
Total Weight of Turret	146

	Tons.
Weight of armour and fastenings	529
,, turret	146
,, pilot house	30
,, hull, complete	1,850
,, outfit	1,377
Total displacement required	3,932
Surplus ditto	64
Total displacement, as per Drawing	3,996

Estimated Weight of Stores, &c., for Sea-going Turret-ship.

	Tons.
Water for one month	8
Tare of tanks	7
Provisions and spirits for three months	27
Tare of casks	6
Officers' stores and slops	8
Wood, sand, and holystones	4
Officers, men, and their effects (225 in number)	27
Masts, yards, rigging, sails, &c.	102
Chain and hempen cables	54
Anchors	18
Boats	10
Warrant officers' stores	30
Guns and carriages, two in number, 600-pounders	50
Powder, 150 rounds for each 600-pounder	20
Shot and shell	65
Small arms	4
Grape and canister	6
Galley	4
Condensers	6
Engines, boilers, &c.	561
Extra work on engines	25
Coals	300
Engineers' stores	15
Total Weight of Equipment	1,377
Weight of armour plates and backing	529
,, turret, complete	146
,, pilot house	30
,, hull, complete	1,850
Total displacement required	3,932
Surplus ditto	64
Total displacement, as per Drawing	3,996

(signed) *Joseph Scullard,*
Head Draughtsman, Portsmouth Dockyard.

Note.—For amended Statement of Weights, *see* answer to Question No. 298.

— No. 2. —

REPORT from Controller of the Navy on Captain *Coles*' Design for a Sea-going Turret-ship.

My Lord, Admiralty, 28 April 1865.

WITH reference to Admiralty Order of yesterday's date, appointing a Committee to inquire into the merits of Captain Coles' design for a sea-going turret-ship, I am commanded by my Lords Commissioners of the Admiralty to transmit to you, for the information of the Committee, a copy of a Report from the Controller of the Navy on the said design.

I am, &c.

Vice Admiral the Earl of Lauderdale, (signed) *W. G. Romaine.*
17, Upper Hyde Park Gardens.

Captain *Coles*' Design for Sea-going Turret-ship.

Admiralty, 26 April 1865.

I BEG leave to forward a more detailed Report on the sea-going turret-ship proposed by Captain Coles, than I was able to do in my statement of the 8th of April.

I propose still to confine my remarks to the actual design furnished by Captain Coles, and not to consider the alternative proposals embodied in his letter, as they would require the production of drawings and statements which have not been furnished.

The dimensions and tonnage of the ship do not differ materially from those of the "Pallas."

The tonnage of the turret-ship, as calculated by the Admiralty rules, is slightly more than that given by Captain Coles; the actual displacement or total weight of his ship is 3,996 tons, or 378 tons more than the "Pallas": the draught of the two ships is not very different, but the turret-ship draws less water aft and more water forward than the "Pallas," though the mean draught is nearly the same.

The area of the midship sections of the two ships stands thus: "Pallas," 760 square feet; turret-ship, 905 square feet.

The engines of the two ships are alike, and supposing both to be equally effective, the usual rules of computation would give the speed of the "Pallas" slightly over 13·8, and of the turret-ship, 13·3 knots; it is generally found that the actual speeds obtained are slightly in excess of the computed speeds.

It is proposed to build the turret-ship of iron, and that her framing and general system of plating shall be that adopted in the "Bellerophon," and though the draughtsman has not quite understood its application, or at any rate introduced it erroneously in the drawing, the mistake is easily rectified, and need not affect the principle of the design.

The armour-plating consists of a narrow belt of 6-inch iron, 2 feet above and 4 feet below the water-line, except at a space which incloses the turret in a box, where it is carried up to the upper deck.

The thickness of the armour is gradually reduced to 3 inches abaft and to 4½ inches forward, until within 25 feet from the stem it ceases altogether, the safety of the ship being provided for by cellular compartments.

A very strong 1-inch iron deck is introduced at the level, where the armour-belt ends.

The upper deck is also of iron, and is 10 feet above the water.

The frames, teak backing, and skin of the ship appear to be of sufficient strength.

There are several water-tight bulk-heads, and armour-plated thwart-ship bulk-heads, some of which inclose the turret, and others are placed as shields for defensive purposes.

It does not appear that there is any practical difficulty in building such a ship.

She is masted with tripod masts and carries a large quantity of sail.

The area of the working sails of the "Pallas" is 16,716, of the turret-ship 18,218; their relative stability is "Pallas" 481, turret-ship 402.

The two features, however, on which the whole design hinges, are the offensive power as represented by the armament, and the defensive power represented by the armour-plating.

The armament for offensive purposes consists of two 20-ton guns, or 600-pounders, as Captain Coles prefers to call them, inclosed in a revolving turret, defended by armour-plating, and worked on a plan now very well understood.

They cannot fire exactly ahead, nor within 14 degrees on each side of the line of keel aft, though they have otherwise a very large and quite exceptional power of training, but of course both guns must be fired on the same side, and generally at the same object, so that when engaging an enemy on both sides, this plan subjects the ship to a very considerable disadvantage.

I do not mean to say that a ship with one turret only is to be absolutely condemned, but I cannot but see that it is a very serious objection to a sea-going man-of-war to have all its offensive power so disposed of.

All

Appendix.

All the armament being in one turret makes a catastrophe possible, though not probable.

If the turret from any cause got jammed, or if a shell exploded inside it, the offensive power would probably be entirely destroyed.

This too, though not a fatal objection to the design, is, in my opinion, one that deserves serious consideration.

It appears to me that there is some risk, too, in designing a ship expressly to carry guns which do not exist, and are untried. We do not know that such guns can be loaded or pointed, even in a turret, with the precision and quickness required in action at sea.

No doubt they can be used in smooth water against fixed objects on shore with far more effect than much smaller guns mounted in any other way, but it still remains doubtful whether when ships meet ships at sea in rapid motion, both on and through the water, the requisite rapidity of handling such guns can be secured.

Guns of less weight than 20 tons, will pierce even 6-inch armour plates, and the question will occur again and again whether more guns of less weight would not be more effective than the plan proposed in the design.

The defensive power of the ship represented by her armour-plating has some important features which should be seriously considered.

The 6-inch belt, with the exception before referred to, is only 2 feet above the water-line, and wholly ceases at 25 feet from the stem, where the ship is exposed, like the "Warrior" and "Hector," without any protection.

The narrowness of this belt is a serious danger, mitigated it is true to some extent by the strong iron deck which meets the top of the belt, and (as far as they act) by the thwart-ship armour-plated bulk-heads; but, nevertheless, ships so partially armour-plated are not by any means so secure against plunging and raking fire as ships wholly plated; and though it may be wise to make a certain sacrifice of security for the sake of obtaining sea-going qualities, such limited armour-plating as is here proposed, is a sacrifice, and a very considerable one.

How large that sacrifice is, a glance at the exposed position of the up-take will show, should the ship be attacked by an enemy astern; indeed, from plunging shot so fired, the safety of the ship depends entirely on the iron deck; but if from aft, the danger of plunging shot is great; although there the plating has been judiciously raised to give additional protection, the case appears still more serious forward, where there is a total cessation of defensive armour for 25 feet, and though the thwart-ship bulk-heads have been carefully placed to diminish, as far a possible, the risk.

I see nothing to prevent a shot from passing into the boilers with but little resistance.

This part of Captain Coles' design appears to follow the plans of the "Warrior," "Defence," &c., but it has been, I believe, more generally condemned than any other feature of our iron-clad navy; nor do the thwart-ship bulk-heads of the turret-ship descend anything like as far below the water-line as they do in the "Warrior" or "Defence."

The water-tight bulk-heads stop at the lower deck in this design; that is about 3 feet above the water-line.

In other iron-clads they are carried to the deck above. The security offered by these water-tight bulk-heads, therefore, is less than what has been usually given.

In pointing out that considerable sacrifices of security appear to have been made to obtain good sea-going qualities, I am quite aware that some such compromises take place in all designs; and that they should be judged with reference to the advantages or disadvantages of the whole construction.

Great pains have been taken to procure a large spread of canvas, which appears to be well proportioned, well balanced, and well placed.

In order to prevent the range of fire from the turret being interrupted by the rigging, recourse has been had to what are called tripod masts, and the arrangement appears extremely ingenious.

So many officers, whose judgment is of great weight, consider the large sail power so essential to a sea-going man-of-war, that it is with diffidence that I state my deliberate conviction that all the essential qualities of a steam-ship of war, especially of an iron-clad, are jeopardized by a large system of sail power, and that my objections to it are not diminished by carrying the sail on tripod masts.

If there are practical reasons which render it almost impossible to raise the screw of a well-designed iron-clad (and in this design it is not proposed to do so) then the large sail power, in my opinion, fails to effect its intended purpose, and is only mischievous in action, in a gale of wind, or in steaming with foul winds.

If, however, large sail power is required in a sea-going turret-ship, it can only be obtained by the ingenious invention of Captain Coles.

The turret system renders it necessary that no standing bulwarks shall exist, and that there shall be nothing along the gunwales to obstruct the line of fire: falling down bulwarks are of course very liable to be stove, and to be washed away in a heavy sea, and cannot be said to afford the security given by permanent bulwarks; difficulties also are occasioned by the system, in working the anchors and boats, but they are not insurmountable, and the height of the upper deck above the water, even when its bulwarks are down, is considerable.

There is no reason to suppose that the ship would be more uneasy than other iron-clads, or that her sea-going qualities would be inferior to others, with the exception that the bulwarks may be destroyed in a heavy sea, and the decks swept bare after their loss.

There

Appendix.

There are some minor details which would perhaps require to be modified, but which are not of sufficient importance to affect the design.

I have endeavoured to place the principal features of this design before their Lordships, with a view that the subject should receive such a careful and impartial consideration as the importance of the subject, and the care and ability bestowed upon it by the inventor, fully entitle it to.

(signed) *Rob. Spencer Robinson.*

— No. 3. —

"Royal Sovereign."

Actual Weight of Turrets, &c., as Fitted.

TURRETS.					Weight of Guns and Carriages.			
Description.	Weight.							
	Tons.	*cwts.*	*qrs.*	*lbs.*	*Tons.*	*cwts.*	*qrs.*	*lbs.*
Large turret - - - - -	162	0	3	10	28	16	0	0
					(2 guns.)			
Small turret, after - - - -	148	13	0	4	14	8	0	0
Ditto - second from aft - -	151	7	1	14	14	8	0	0
Ditto - third from aft - -	151	0	3	0	14	8	0	0

There is no other information in office which can be relied on as to the weights of turrets.

(signed) *Rob. Spencer Robinson.*

Controller's Office, 8 May 1865.

— No. 4. —

Correspondence respecting Captain *Coles'* inability to attend before the Committee, and respecting Objections to his Design.

Committee on Sea-going Turret-ship,
Admiralty, 13 June 1865.

Sir,

I request you will lay before the Lords Commissioners of the Admiralty the enclosed copy (No. 1) of a letter, dated the 10th instant, from Captain Coles, in which he begs the Committee not to ask him to commit himself by answering a mere summary of objections raised by evidence that he is not allowed to see, and "that, under these circumstances, he must reluctantly decline to interfere further in the matter."

The circumstances which have led to this letter will appear, by a perusal of the enclosed correspondence, especially the letters marked Nos. 12, 13, and 14.

Captain Coles, from his state of health, being unable personally to attend before the Committee, who were also informed by your letter of the 10th ultimo, of the inability of Captain Coles to name any person to represent him before them, the Committee in order to comply with the instructions they received from their Lordships, that Captain Coles should be allowed full opportunity of considering and answering any objections that might be urged against his plans, forwarded to him, on the 5th instant, a memorandum of objections to the design of the sea-going turret-ship, which had occurred to the Committee, and been alluded to by witnesses in the course of their evidence, to which Captain Coles' letter of the 10th instant is a reply.

It will be seen by the accompanying correspondence that the Committee have been most anxious to afford every reasonable facility to Captain Coles, for considering and answering the objections to the design submitted by him to their Lordships, and referred to the Committee, namely, for a sea-going ship armed with two 600-pounder guns contained in one turret, and not as Captain Coles suggests in his letter, the question "of the comparative merits between Captain Coles' system and others, of working the heaviest ordnance at sea, as well as the masting of ships," although these points, as a matter of course, came under our consideration.

Under these circumstances, I have to request their Lordships will be pleased to notify their decision to the Committee as to what further proceedings they should take.

I have, &c.
(signed) *Lauderdale,* Chairman.

The Secretary of the Admiralty.

Appendix.

SCHEDULE OF ENCLOSURES.

No.		Date.
1.	Captain Coles to Committee - - - - - -	June 10, 1865.
2.	Secretary of Admiralty to Committee - - - -	May 4, "
3.	Committee to Secretary of Admiralty - - - -	May 8, "
4.	Secretary of Admiralty to Committee - - - -	May 10, "
5.	Committee to Controller of Navy - - - - -	May 12, "
6.	Captain Coles to Committee - - - - -	May 14, "
7.	Captain Coles to Committee - - - - - -	May 24, "
8.	Committee to Captain Coles - - - - - -	May 25, "
9.	Captain Coles to Committee - - - - - -	May 27, "
10.	Captain Coles to Committee - - - - - -	May 31, "
11.	Committee to Captain Coles - - - - - -	June 1, "
12.	Committee to Captain Coles - - - - - -	June 5, "
13.	Captain Coles to Committee - - - - - -	June 7, "
14.	Committee to Captain Coles - - - - - -	June 8, "

Enclosure 1, in No. 4.

Sir, Ventnor, 10 June 1865.

WITH reference to your letter of the 8th instant (received on Saturday the 10th), acquainting me that the Committee object to my seeing the evidence upon which you say the summary of objections sent me have arisen, I have to acquaint you that I cannot commit myself by attempting to answer a summary of those 36 objections without knowing upon what evidence they are founded. Indeed, I find myself in the position of having been tried, and certain charges brought against the reputation of my inventions, to which I am now asked to make my defence, without the benefit of having been present, or even knowing from what evidence or facts these conclusions have been derived.

You mention that the Committee cannot depart from the usual course; I have no wish that they should do so; but I cannot but remember that when I was called as a witness before the House of Commons' Committee, on the relative merits of Sir William Armstrong's, Mr. Whitworth's, and others' guns, that I gave my evidence before an open court, where those interested in both sides of the question were at liberty to hear all the evidence, the only difference being, that this Committee is constituted by the Admiralty, and that, instead of being a question of guns, it is one of the comparative merits between Captain Coles' system and others', of working the heaviest ordnance at sea, as well as the masting of ships.

I cannot ask the Committee to depart from their decision, but I beg them not to ask me to commit myself by answering a mere summary of objections raised by evidence that I am not allowed to see; and, under these circumstances, I must reluctantly decline to interfere further in the matter.

I have, &c.

Arthur Price, Esq., (signed) *Cowper P. Coles.*
&c. &c. &c.

Enclosure 2, in No. 4.

Sir, Admiralty, 4 May 1865.

I AM commanded by my Lords Commissioners of the Admiralty to request you will state to the Committee that the medical attendant of Captain Cowper Coles considers it unadvisable for Captain Coles to attend to business for some days.

I have, &c.

To the Secretary to the Committee on (signed) *W. G. Romaine.*
Captain Coles' Plan of Turret Ship.

Enclosure 3, in No. 4.

Committee on Sea-going Turret Ship, Admiralty,
Sir, 8 May 1865.

WITH reference to your letter (S.), of the 4th instant, stating that the medical attendant of Captain Coles considered it unadvisable for Captain Coles to attend to business for some days, I am directed by the Committee to state that as they are about to commence taking evidence on the subject of their inquiry, they think it desirable that Captain Coles, or some person on his behalf, should attend to afford explanations required by the Committee relative to the proposed sea-going turret-ship; and I am to request that their Lordships will instruct Captain Coles, if unfortunately not able to attend personally, to name a person to represent him, who should attend the Committee on Thursday next, the 11th inst., at 12 o'clock.

I have, &c.
(signed) *Arthur Price,*
The Secretary of the Admiralty. Secretary of the Committee.

Appendix.

Enclosure 4, in No. 4.

Gentlemen, Admiralty, 10 May 1865.

I am commanded by my Lords Commissioners of the Admiralty to acquaint you that they have received a communication from Captain Coles, stating that he is still confined to his room, and regretting his inability to name any person to represent him before your Committee.

I am, &c.
(signed) *W. G. Romaine.*

The Committee on Captain Coles' Turret-ship.

Enclosure 5, in No. 4.

Committee on Sea-going Turret-ship,
Admiralty, 12 May 1865.

Sir,

I am directed by the Committee to state that they have been informed that models are being prepared at Portsmouth Dockyard of the sea-going turret-ship proposed by Captain Coles, and of the tripod masts; and that, although the models are in an incomplete state, they are sufficiently advanced to be useful for reference on material points. The Committee would therefore feel obliged if you would give directions that these models may be forwarded for their inspection.

I am to add that the Committee have requested Mr. J. Scullard, draughtsman, of Portsmouth Dockyard, to attend before them on Monday morning next, and he will be able to explain the models to the Committee.

I am, &c.
(signed) *Arthur Price,*
Secretary of the Committee.

Rear Admiral R. S. Robinson,
Controller of the Navy.

Note. (13 June 1865.)—The Committee received information of the existence of these models from Mr. Scullard, the draughtsman, who was employed under Captain Coles, in preparing the design of the ship, and who suggested that the models should be sent for.

Enclosure 6, in No. 4.

Sir, Yarborough Villa, Ventnor, 14 May 1865.

I beg you will thank the Earl of Lauderdale and his Committee for sending Mr. Scullard to me, whom I find had been examined before them, and it appears there has been some misunderstanding in the weights given of a turret for two 600-pounders; but Mr. Scullard assures me that as he has 64 tons extra displacement, this will make no appreciable difference in his calculations, as shown in his revised estimate of weights which he has with him.

I must respectfully request that should the Committee have any communications to make to me, they will kindly do so in writing, as verbal messages are always liable to cause mistakes.

I would beg the Committee to understand that Mr. Scullard cannot represent my interest and views in favour of the turret and central armament principle.

I have, &c.
(signed) *Cowper P. Coles.*

A. Price, Esq.,
Secretary to the Committee on Turret-ship.

Enclosure 7, in No. 4.

Sir, Ventnor, 24 May 1865.

Having received no reply to my letter of May 14th, I now beg you will kindly inform the Earl of Lauderdale and the Committee that I am sufficiently recovered to enable me to give my attention to any communications they may be pleased to make to me, and that I shall feel great pleasure in using my best endeavours to give them all information that lies in my power.

I have, &c.
(signed) *Cowper P. Coles.*

Arthur Price, Esq.
Secretary to the Committee on Turret-ship.

Appendix.

Enclosure 8, in No. 4.

Committee on Sea-going Turret-ship,
Admiralty, 25 May 1865.

Sir,

I AM directed by the Committee appointed to examine the design of a sea-going turret-ship submitted by you to the Admiralty, to acknowledge the receipt of your letter of the 24th instant, in which you state that you are sufficiently recovered to enable you to give attention to any communications the Committee may make to you; and, in reply thereto, the Committee desire me to say that they did not trouble you with any communication consequent on your previous letter of the 14th instant, because they heard, with very great regret, of the bad state of your health at that time, and refrained, therefore, from explaining that there was some misapprehension on your part in supposing that the Committee had sent any verbal message to you by Mr. Scullard, the draughtsman, as such a proceeding was not their intention. It was merely understood, on their part, that Mr. Scullard, in visiting you, would obtain some details which he believed you had already prepared with regard to the dimensions and weight of the turret for the proposed sea-going ship.

The Committee are very glad to learn from you that your health has now improved; and as they have not yet in their possession an exact statement of the dimensions, &c., of the turret designed for the proposed sea-going ship, or any details respecting the tripod masts, they would feel obliged if you would be good enough to furnish them with the following particulars:—

1. The exact dimensions of the turret; the thickness of the plating, both between the guns and round them, as well as on the other parts of the turret.

2. Thickness of wood backing, and of inner iron skin of the turret.

3. A description of any other materials used in the construction or strengthening of the turret.

4. Accompanied with a drawing, per scale, of the turret.

5. How many feet in height of the turret will be above the upper side of the upper deck.

6. Number of feet that the armour plates connected with the turret reach below the upper surface of the upper deck.

7. All information respecting the tripod masts, lead of ropes, &c.

If, unfortunately, your state of health will not admit of your personal attendance before the Committee, they propose, shortly, to furnish you with a summary of objections which, in the course of evidence, have been raised to the proposed sea-going turret-ship with one turret (to which the inquiry of the Committee is altogether limited) in order that you may quietly consider them, and furnish such information and explanations as you may think desirable.

I am, &c.
(signed) *Arthur Price*, Secretary.

Captain C. P. Coles, R.N., Ventnor.

Enclosure 9, in No. 4.

Ventnor, 27 May 1865.

Sir,

I AM obliged for your letter of the 25th instant, and have directed the draughtsman to lose no time in preparing drawings to scale of a turret for two 600-pounders; and also drawings of tripod masts, with the assistance of which I hope to be able to furnish you with the information you require.

My medical men forbid my personally attending the Committee, which I much regret, as it prevents my having the pleasure and advantage of personally explaining to the Committee my system of working heavy guns in turrets and on turntables, &c.

I have, &c.
(signed) *Cowper P. Coles.*

Arthur Price, Esq., Secretary.

P.S.—Pray convey to the President, with my compliments, the enclosed pamphlet, which may give some information as to my views in 1863; but of course, since then, many improvements have suggested themselves.

C. P. C.

Enclosed:—1. Pamphlet; 1. Comparison of "Rolfe Krake" and "Research."

Enclosure 10, in No. 4.

TRIPOD MASTS MODEL.

Sir, Ventnor, 31 May 1865.

ON my sending to the modeller to hurry the completion of a model he was making of my tripod masts, I find that this model of masts, as well as one of turret-ship, has been sent up to the Committee in an unfinished state, and is not returned.

I regret this: first, because it will retard its completion, and prevent my being able to forward such a good description and full explanation as if accompanied and assisted by a complete model; secondly, I fear that this model, in its unfinished state, unaccompanied by description, drawings, or any person who could thoroughly explain my system of masting, may convey very erroneous impressions. I, therefore, would ask the Committee kindly to return the model to the modeller at Portsmouth Dockyard, that it may be completed, so as to enable me to give the Committee a correct idea of these masts, and I shall then use my humble endeavours to put it so clearly before them, as to save them much trouble.

The model of the ship I should also be obliged by their allowing to be completed, as when done, it will explain many points as to training, &c., that might materially assist the Committee in their labours.

I have, &c.
(signed) *Cowper P. Coles.*

A. Price, Esq., R.N., Secretary.

Enclosure 11, in No. 4.

Committee on Sea-going Turret-ship,
Sir, Admiralty, 1 June 1865.

IN reply to your letter of the 31st ultimo, I am directed by the Committee to acquaint you that they will make arrangements for the unfinished models of the sea-going turret-ship proposed by you, and of her tripod masts, to be returned to Portsmouth Dockyard for completion. They will probably be sent to Portsmouth to-morrow evening or on Saturday morning.

I am, &c.
(signed) *Arthur Price,*
Secretary.

Captain C. P. Coles, R.N.,
Ventnor.

Enclosure 12, in No. 4.

Committee on Sea-going Turret-ship,
Sir, Admiralty, 5 June 1865.

REFERRING to my letter of the 25th ultimo, in which I informed you by direction of the Committee, that if, unfortunately, your state of health would not admit of your personal attendance before them, they would furnish you with a summary of the objections which have been raised in the course of evidence to the proposed sea-going turret-ship with her armament contained in one turret, I am now desired by the Committee to transmit to you the inclosed memorandum of objections to the design submitted by you to the Admiralty which have occurred to the Committee, and been alluded to by witnesses in their evidence, in order that you may consider the same; and I am to request that you will furnish the Committee with any explanations or remarks you may wish to offer on the several points referred to in the accompanying paper as soon as you conveniently can; and that you will be good enough at once to intimate to the Committee at about what time they may expect to receive your reply.

I am, &c.
(signed) *Arthur Price,*
Secretary.

Captain C. P. Coles, R.N.,
Ventnor.

Enclosure 13, in No. 4.

Sir, Ventnor, 7 June 1865.

I HAVE the honour to acknowledge your letter of the 5th instant, to which I would have replied by return of post, but that having no assistance, and from the state of my health, my labours are limited, and I was unable to write yesterday.

I have read through the summary of objections forwarded me from the Committee, for which I beg you to thank them, and to assure them that I shall use all the exertions in my power speedily to answer them; but to enable me to do so, will you kindly ask them to send me a copy of the evidence. Pray convey my thanks also, for their kind expressions as to my health.

I have, &c.
(signed) *Cowper P. Coles.*

Arthur Price, Esq.,
&c. &c. &c.

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Enclosure 14, in No. 4.

Committee on Sea-going Turret-ship,
Admiralty, 8 June 1865.

Sir,

I AM directed by the Committee to acquaint you, in reply to your letter of the 7th instant, that, in accordance with the instructions they received from the Lords Commissioners of the Admiralty, that you should be allowed full opportunity of considering and answering any objections that may be urged against your plans, the Committee forwarded to you a Memorandum of the objections to the design of the proposed sea-going turret-ship which had occurred to the Committee, and been alluded to by witnesses in the course of their evidence. But the Committee do not feel justified in departing from the usual course by furnishing you with copies of the evidence given by the witnesses whom they have examined, before the Committee are in a position to make their Report to their Lordships.

The evidence which the Committee have taken respecting the advantages and disadvantages of your design, is treated as confidential according to the usual practice, and will be submitted with their Report (after the receipt and consideration of your answers to the objections that have been pointed out to you) to their Lordships, for them to decide how the Report and Evidence are to be dealt with.

The Committee direct me to add, for your satisfaction, that they do not consider, even if they were justified in supplying you with a copy of the evidence, which is voluminous and as yet incomplete, and which would cause great delay, that it would afford you any information necessary to enable you to answer the objections that have been stated as concisely in the memorandum that was forwarded to you.

I am, &c.
(signed) *Arthur Price*,
Secretary of the Committee.

Captain C. P. Coles, R.N.,
Ventnor.

— No. 5. —

Gentlemen,
Admiralty, 15 June 1865.

WITH reference to your letter of the 13th instant, transmitting copy of a correspondence which has taken place relative to the inability of Captain Coles to attend and answer the objections raised against his design for a sea-going turret-ship, I am commanded by my Lords Commissioners of the Admiralty, to request you will now proceed to make your Report on the matters submitted to you.

I am, &c.
(signed) *C. Paget.*

The Committee on Captain Coles' Turret-ship.

— No. 6. —

COPY of PAPER transmitted to Captain *Coles*, in Letter of 5 June 1865 (Enclosure 12, in No. 4.)

Committee to Examine the Design of a Sea-going Turret-ship, submitted to the Admiralty by Captain *Coles*.

Admiralty, 5 June 1865.

THE following objections to the design have occurred to the Committee, and been alluded to by witnesses in the course of their evidence:—

1. That the whole offensive power of the ship, as represented by her armament, is comprised within one turret, which would be liable to be rendered temporarily or permanently *hors de combat*, by one shot or shell, under any of the following circumstances:—

(*a.*) The possibility of a steel shot or shell entering the top of the turret when the vessel was rolling towards the enemy, or exposed to plunging fire from a battery.

(*b.*) The probability of a shot or shell from a 12-ton gun penetrating the turret, or entering through the armour-plating of the ship's side, disabling the guns, and damaging the turning machinery of the turret.

(*c.*) When the turret-ship is heeling towards the enemy, a shot passing through the upper deck, between the glacis-plate of the turret and the ship's side, would damage or disable the turning machinery.

(*d.*) A heavy shot striking the ship's side abreast of the turret, even without penetrating, would be liable, by the great concussion, to send fragments of wood or iron into the lower part of the turret or its machinery, and temporarily prevent its working.

2. The possibility of the ship being boarded, and the turret jammed by wedges.

3. Taking into consideration the great weight of the turret and guns, it has also been suggested as being questionable whether the turret would be secure in a very heavy sea-way, when the ship was lurching heavily, from the violent jerking strain that would be thrown on the iron collar round which the turret revolves, and which is the only security to prevent the turret fetching way.

4. The small amount of depression that can be given to the guns, particularly when trained forward or aft.

5. The greatest power of training the guns aft is limited to an angle of 13 degrees from the fore-and-aft line, and at that angle only one gun can be used. The other gun can only be fired at an angle of about 33 degrees from the fore-and-aft line. In training forward, only one gun can be fired at 2 degrees of the fore-and-aft line; the other gun at an angle of about 13 degrees.

6. The interruptions to the training of the guns by the legs of the tripod masts, and the chances of the legs of the masts being shot away by the fire of the ship's own guns.

7. The great length of deck fired over when firing forward or aft, especially when firing rifled shot, which it is supposed would injure the deck.

8. The difficulty of securing hatches or openings in the decks, which would be in the way of the line of fire.

9. The fact that the captain of the turret, on whom rests the whole responsibility of directing the fire, is the only man exposed to rifle fire from the enemy.

10. There is great doubt whether a turret, of the proportions given, would afford sufficient room to fight efficiently two 600-pounder guns of about 22 tons each.

11. The apparent necessity of loading both guns simultaneously; and the great difficulty and length of time required to load such heavy guns as 600-pounders in a sea-way; the risk of carrying and working such heavy guns in a sea-way; and the slowness of fire as compared with guns of half the weight.

12. If the sights are to be fitted as those of the "Royal Sovereign," the plan is much the same as the old system of firing guns by Moorsom's Director, which is not applicable to all circumstances. As the captain of the turret has to pass the word to No. 2 inside the turret, as to what elevation it will be necessary to give the gun with reference to the heel or roll of the ship, and as No. 2 has then to make a calculation, adding to or substracting that elevation from the elevation due to the distance of the object, there is no doubt that at sea, under the ordinary circumstances of a naval action, this will be very liable to delay and error.

13. The sights on the turret by which the gun is fired, however acurately fitted at first, are liable after a time to become untrue by wear, &c., of the slide and fittings.

14. If the number of men for working the guns is to be in the same proportion as for those in the "Royal Sovereign," there does not appear to be sufficient space within the box that incloses the base of the turret to hold the guns' crews.

15. The necessity for the officers and ship's company not engaged in working the guns, magazines, and engines, or in steering the ship, and who would be upwards of 100 in number, having to be placed in the holds for shelter during action.

16. If, from any circumstances, it should be necessary to manœuvre the ship under sail in action, or to employ men on deck for any work or duty, the total want of protection for the men employed on deck, and the impossibility of their remaining on that part of the deck near which the guns are being fired, as also the risk of their being washed overboard if the ship should be driven against a head sea when cleared for action.

17. The limited amount of defensive powers of the ship when at anchor against sudden attack from boats, or attempt to carry the ship by boarders.

18. The limited power of defence against two or more ships, if the turret-ship be attacked on both sides, and the exposure of the weak side of the turret to the fire of one or other of the enemy.

19. It is questionable whether the upper deck is of sufficient height above the water to render the ship a good sea boat, and afford adequate protection for the health and comfort of the crew when the ship was making a passage, and going against a head sea, trade wind, monsoon, or strong periodical winds met with in all parts of the world, and which vessels are liable to encounter when making an ordinary passage.

20. It is questionable whether the movable bulwarks will be sufficiently strong to resist the sea under the circumstances above indicated.

21. The liability of movable bulwarks to be washed away, or get out of order from constant wear.

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22. The up-take of the boilers is not so well protected against shot as is usual in armour-plated ships of war.

23. The danger, when the ship is rolling, of a shot passing over the armour belt and through the deck into the boilers, or possibly through the ship's bottom on the opposite side. This would be the case if the ship were struck when rolling 10 degrees towards the enemy.

24. The possibility of a shot entering at the water-line on the bow, passing below the foremost thwart-ship armour-plated bulkhead, and going out through the ship's bottom, which would happen if it struck the ship at an inclination of 10½ degrees. Also, a shot coming in the same direction, and at a small angle above, might pass over the foremost thwart-ship bulkhead and rake the deck fore and aft.

25. The armour-plating belt not being carried completely round the bow.

26. The limited extent of the 6-inch armour-plates, which only extend to about 100 feet amidships, tapering to a much less thickness towards the extremities, as also the narrowness of the belt, being only 2 feet above and 4 feet below the water-line.

27. Considerable doubt as to the speed of the turret-ship coming up to the speed given by the designer, even to a loss of from half-a-knot to a knot and a-half.

28. A supposition that, with the same weight of materials, namely, those used in the construction of the hull, the armour-plating, turret, and guns, and with the same displacement, a more formidable sea-going ship for attack and defence could be designed.

29. A doubt whether, under the system of tripod masts, there is sufficient elasticity in the legs of the tripod to withstand the working of the vessel, they being fixtures at both ends.

30. A doubt as to the expediency of arming a ship with guns of the weight of 22 tons, it not being yet clear that such heavy guns are necessary, guns of half that weight having been found to pierce the thickest plates yet put into a ship. Again, there are no such guns at present adopted for the naval service.

31. Doubts appear to be entertained of the sea-going qualities of the ship, more especially as to pitching and rolling.

(signed) *Lauderdale*, Chairman.

— No. 7. —

Committee on Sea-going Turret-ship,
Admiralty, 22 June 1865.

Sir,

With reference to previous correspondence, I request you will lay before the Lords Commissioners of the Admiralty the letter dated the 20th instant, of which the enclosed is a copy, received by the Committee from Captain Coles, and which they beg to submit for their Lordship's consideration; observing that, in compliance with their Lordship's directions signified in your letter (S.) of the 15th instant, the Committee are now engaged in preparing their Report on the matters submitted to them.

I have, &c.

The Secretary of the Admiralty. (signed) *Lauderdale*, Chairman.

Enclosure in No. 7.

Sir, Ventnor, 20 June 1865.

On again reading over the correspondence that has passed between the Committee and me, I find from your last letter declining to give me the evidence upon which the objections have been based, that, in speaking of the instructions given by the Admiralty to the Committee, you say they were directed to allow me "full opportunity of considering and answering any objections"; whilst in a letter from the Admiralty to me of May 2d, they say, "the Committee has been directed to give you the fullest opportunities of explaining your plans, and answering any objections that may be made to them."

I have therefore thought it right to call your attention to this, and respectfully to point out to the Committee that, in addition to the reason assigned by me in my last letter for not defending the summary of 36 objections raised by the evidence, I do not think the Committee are giving me the "fullest opportunities of answering any objections that may be made to my inventions," when they keep from me the evidence upon which which those objections are raised.

I am the more induced to point this out as, on looking over those objections, I feel that if given the fullest opportunities I can answer them most satisfactorily, and am perfectly ready to do so, but I must decline answering a mere summary of objections in absence of my knowing upon what evidence they have been raised, and thus being denied the

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the fullest opportunities of doing justice to myself and this public question. I am sure the Committee will forgive me for again appealing to them to give me the fullest opportunities of defending my inventions; and pray convey to them my full assurance that whatever their decision may be, I feel satisfied it will be only dictated by the most honourable desire to do me, and this question, upon which so much is pending, every justice.

I have, &c.
A. Price, Esq., Secretary. (signed) *Cowper P. Coles.*

— No. 8. —

Gentlemen, Admiralty, 24 June 1865.

WITH reference to your letter of the 22d instant, I am commanded by my Lords Commissioners of the Admiralty to transmit to you a copy of a letter which has been addressed from this office to Captain Coles, with reference to his letter of the 20th instant, urging you to give him the fullest opportunities of defending his invention.

I am, &c.
The Committee on Captain Coles' Design for Sea-going Turret-ship. (signed) *J. H. Briggs*, pro Sec.

Enclosure in No. 8.

(Copy.)

Sir, Admiralty, 23 June 1865.

I AM commanded by my Lords Commissioners of the Admiralty to acquaint you that they have received from the Committee appointed to report on your design for a sea-going turret-ship, a copy of your letter of the 20th instant, again appealing to the Committee to give you the fullest opportunities of defending your inventions.

My Lords have much regretted that the state of your health has prevented your attendance before the Committee, and that you were also unable to depute any person in your place.

Under these circumstances, their Lordships have not considered it desirable that the proceedings of the Committee, composed of officers whose services are urgently required elsewhere, should be protracted; and as you did not feel yourself able to answer the objections laid before you without an opportunity of perusing the evidence, their Lordships have desired the Committee to make their report.

As soon as their Lordships have had an opportunity of perusing the evidence, they will communicate further with you, with the view of affording you the fullest opportunity of answering the objections raised against your design.

I am, &c.
Captain Coles, R.N., (signed) *C. Paget.*
Yarborough Villa, Ventnor, Isle of Wight.

REF[illegible] [illegible]LL MALL

CORRESPONDENCE

BETWEEN

THE ADMIRALTY AND CAPTAIN COWPER COLES,

AND THE

PAPERS RELATING THERETO.

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— II. —

COPY of the CORRESPONDENCE between the Admiralty and Captain *Cowper Coles*, and of the PAPERS relating thereto.

SUBSTANCE of the two REPORTS by Captain *S. Osborne*, respecting Results of Trial of the "Royal Sovereign," dated 1st August 1864 and 15th October 1864.

I HAVE now, Sir, in this somewhat lengthy report, touched upon all points connected with the efficiency of this ship, so far as it was possible to try her on the late occasion, and have every reason to believe that if the few improvements I have suggested are carried out the ship will leave this dockyard on the next occasion, admirably fitted for the defence of the coasts and harbours of Great Britain, and quite capable, with prudent management and watching the weather, of proceeding from any one port to another upon our coast.

The great width of the upper deck is a serious defect; but that is purely owing to this ship being a converted vessel; no vessel expressly constructed to carry turrets requires such a deck as we have (some 63 feet in width).

The extreme external width is only 62 ft. 2 in.

When rolling in a sea-way, so wide a deck as ours, with a low bulwark, has an insecure appearance, and when riding at anchor, in bad weather, the drift and wet blow along it in a very trying manner, severely punishing those exposed in charge of the watch; fortunately, however, having no masts or yards, the crew of the "Royal Sovereign" need be little exposed to the weather except for the "lead" and "look-out."

To recapitulate: I am of opinion that the "Royal Sovereign," as she now stands, is the most formidable vessel of war I have ever been on board of; she would destroy, easily, if her guns were rifled, any of our present iron-clads, whether of the "Warrior," "Hector," or "Research" class.

Her handiness, speed, weight of broadside, and the small target she offers, increase tenfold her powers of assault and retreat; and I believe I see my way to firing by night from a turret with as much accuracy as by day, so long as the enemy is visible.

On the other hand, a vessel razeed as she has been, cannot be considered a deep-sea cruiser, or calculated to go to foreign stations, except in emergencies, or for special purposes, such, for instance, as when we sent our iron-clad batteries to the Crimea.

Vessels like the "Royal Sovereign" are admirably calculated for the defence of the coasts, harbours, and roadsteads of Great Britain.

With 12 such converted vessels the fleet might be sent abroad to fight an enemy, and we could feel secure at home come what might; the more so as any naval officer would undertake to work and fight these vessels, if manned by artillerymen, with only a dozen sailors to steer and take the lead.

In the early part of October, Captain Coles had an interview with some members of the Board of Admiralty, which led to the following Correspondence.

Captain *Coles* to the Secretary of the Admiralty.

Drawings of "Pallas."

Her Majesty's Dockyard, Portsmouth,
10 October 1864.

My Lord,

With reference to my conversation on the 8th instant with their Lordships, relative to the construction of sea-going turret ships, I have the honour to request that, in accordance with their promise, I may be supplied with the drawings and weights of Her Majesty's ship "Pallas" with as little delay as possible.

I have, &c.
(signed) *Cowper P. Coles.*

Rear Admiral
The Right Honourable Lord Clarence Paget, C.B.,
&c. &c. &c.

The Secretary of the Admiralty to Captain *Coles.*

Sir,
Admiralty, 11 October 1864.

With reference to your letter of the 10th instant, I am commanded by my Lords Commissioners of the Admiralty, to acquaint you that they have ordered you to be supplied with the drawings and weights of Her Majesty's ship "Pallas," to enable you to carry out your design for a sea-going turret ship, observing that the drawings, &c. are for your information only, and are not to be made public.

I am, &c.
W. G. Romaine.
(signed) *C. Paget.*

Captain Coles, Her Majesty's Dockyard,
Portsmouth.

The Secretary of the Admiralty to Captain *Coles.*

Sir,
Admiralty, 28 October 1864.

With reference to your letter of the 10th instant, I am commanded by my Lords Commissioners of the Admiralty to transmit to you copies of the original drawings, and a statement of weights, of the "Pallas," to enable you to carry out your designs for cupola sea-going ships, observing that the crown of the battery, and the forecastle of the ship are being completed on a flush deck.

The following is a list of the documents enclosed:—

Sheer drawing.
Midship section.
Profile.
Plan of top battery.
Plan of upper deck.
Plan of lower deck.
Plan of hold.
Statement of weights.

I am, &c.
(signed) *W. G. Romaine.*

Captain C. P. Coles, R.N.,
Her Majesty's Dockyard, Portsmouth.

Captain *Coles* to the Secretary of the Admiralty.

Sir,
Yarborough Villa, Ventnor, 29 October 1864.

I have the honour to acknowledge the receipt of the drawings of Her Majesty's ship "Pallas," but as your letter does not inform me as to what draughtsman is to be employed to carry out my views of a turret sea-going ship for their Lordships' consideration, I have to request you will be pleased to give the necessary directions for me to have the services of a competent draughtsman, and I would suggest that one attached to Portsmouth yard would be most convenient. Nearly a month having already elapsed since their Lordships decided upon sending me the drawings of the "Pallas," I shall be obliged by an early reply.

I am, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq.
&c. &c. &c.

REPORT of the Controller of the Navy.

Sea-going Turret Ship, Draughtsman to assist Captain Coles.

Sir, Admiralty, S.W., 2 November 1864.

WITH reference to their Lordships' Minute on the enclosed paper, I beg leave to submit that the Admiral Superintendent at Portsmouth be directed to confer with Captain Coles, and allow him to select a draughtsman of that yard to carry out his views with reference to a design for a sea-going turret ship, which he is to prepare for the consideration of their Lordships. The Admiral Superintendent should also be directed to give Captain Coles and his draughtsman all facilities needful for the purpose.

With reference to Captain Coles's statement to the effect that "nearly a month has already elapsed since their Lordships decided upon sending him the drawings of the 'Pallas.'" I beg leave to observe that I received their Lordships' order to prepare, and forward these drawings, on the 12th of October, and on the same day directed Woolwich to prepare them without delay. They were quickly made, being sent to me on the 25th October, and forwarded by me to their Lordships for transmission to Captain Coles on 27th October. It will be seen from this statement that no time has been lost in this department.

I am, &c.
(signed) *E. J. Reed,*
For the Controller, absent at Malta.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 3 November 1864.

WITH reference to your letter of the 29th ultimo, I am commanded by my Lords Commissioners of the Admiralty to acquaint you, that the Admiral Superintendent at Portsmouth has been directed to confer with you, and allow you to select a draughtsman of that yard to carry out your views with reference to a design for a sea-going turret ship which you are to prepare for their Lordships' consideration; and he has also been desired to give you and your draughtsman all facilities needful for the purpose.

I am, &c.
(signed) *W. G. Romaine.*

Captain C. P. Coles,
Yarborough Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Draughtsman to design Sea-going Turret ship.

Sir, Yarborough Villa, Ventnor, 5 November 1864.

WITH reference to your letter of the 3d instant, S., informing me that I may select a draughtsman to prepare drawings of a sea-going turret ship for their Lordships' consideration, I beg you will inform their Lordships that I cannot select a draughtsman on my own responsibility, more particularly as I am now told that the calculations are wrong of vessels got out on my plan (one by Mr. Barnaby) to meet their Lordships' requirements.

I am perfectly ready to design a vessel representing my views, for their Lordships' consideration, but I must request that they give me the services of a draughtsman who they consider competent.

Referring to the drawings sent me of Her Majesty's ship "Pallas," I find that some of the essential weights and measurements are omitted, such as displacement, area of midship section, &c., and beg to enclose a list of those required.

If I understand your letter rightly, of the 28th ultimo, the "Pallas" is to have another deck added, to which I suppose there will be bulwarks. I shall be obliged by being informed of the height of bulwarks, the extra weight incurred by this deck and bulwark, and increased immersion.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C.B.
&c. &c. &c.

Enclosure in the above.

DIMENSIONS and WEIGHTS required for Her Majesty's Ship "Pallas."

		Ft. in.
Deep load	forward	*18 0*
Draught of water	aft	*24 0*
	mean	—
Horse-power of engines, nominal		*600.*
Ditto - - - indicator		*3,600.*
Speed of ship at load draught		*14 knots.*
Displacement in tons to the above draught of water		*3,618 tons.*
Displacement in terms of the parallelopipedon contained by the length of the water line, breadth at the water-line, and mean draught of water area of greatest transverse section		*760 sq. ft.*
Area of ditto, in terms of the rectangle contained by the breadth of the load water line and mean draught of water.		
Area of load water section		*8,996 sq. ft.*
Area of ditto, in terms of the rectangle contained by the length and breadth at the water line.		
Immersion per inch at the load water line		*21·42 tons.*
Depth of centre of gravity of displacement below the load water line		*8·11*
Depth of centre of gravity of greatest transverse section below load water line.		
Length on the water line from fore part of stem to after part of stern-post. *See drawing.*		
Centre of gravity of displacement abaft		*1·47 feet.*
Volume in cubic feet before centre of gravity of displacement		
Ditto - - - abaft - - - ditto		
Distance of the centre of gravity of the fore volume before the centre of gravity of displacement		
Distance of the centre of gravity of after volume abaft the centre of gravity of displacement		
Distance of centre of gravity of load water section from centre of gravity of displacement		
Height of metacentre above centre of gravity of displacement		*12·2 feet.*
Ditto - - above water line		*4.09 ,,*
Area of all plain sails in square feet		*16,766 sq. ft.*
Height of centre of effort above load water line		*64·95 feet.*
Distance of - ditto - before		*1·75 ,,*

Weights of the Hull.

Weight of iron ⅜-inch thick on decks, about 100 tons, *included in weight of hull.*		
Armour plating on sides	*armour belt*	*407 tons.*
Backing for - - ditto	*ditto* - *on side of battery*	*48 ,,*
Armour plating in box above line of sides:		
Backing for - - ditto	*ditto* - *on bulkheads*	*60 ,,*
	ditto - *on forecastle*	*18 ,,*
Armour in bulkheads	*fastenings*	*27 ,,*
Backing for ditto	*wood bulkheads*	*17 ,,*
		included in weight of hull.
Provisions, stores, ammunition, and guns, *with engines, coals, &c.*		*1,338 tons.*

Allowed for extras:

Extra upper decks and bulwarks		*70 tons*
Hull, exclusive of armour		*1,700* ,,
Weight equal to the displacement at draught of water forward, about	18·3	*3,668* ,,
Ditto aft	24·3	

Note.—*The figures, &c. in Italics were filled in by the Controller's Department, as stated by him in his Report of* 10*th November* 1864; *and this Paper was enclosed to the Secretary of the Admiralty, with the following Report.*

Sea-going Turret-Ship—Captain Coles.

Admiralty, S.W., 10 November 1864.

WITH reference to Captain Coles' letter of the 5th instant, I beg leave to report as follows:

1. As Captain Coles, after having in a former letter suggested that a draughtsman at Portsmouth would suit his purpose, now declines the selection of one, I submit that Admiral Elliot be directed to select, from the staff of draughtsmen at that yard, one whom he considers in every respect competent to assist Captain Coles in framing the design of a turret-ship based on that of the "Pallas," and to place this draughtsman at the service of Captain Coles, affording him at the same time all other facilities that he, the Admiral Superintendent, may consider necessary to the rapid and satisfactory preparation of the design.

2. The displacement, area of midship section, &c., were omitted from the list of weights, &c., sent to Captain Coles, because it was understood that in modifying the design it was proposed that Captain Coles should simply deal with the portion of the ship above the water; I have now, however, caused as many of the particulars which he enumerates on the paper annexed as are on record in this office to be filled up, but see no necessity for taking the draughtsmen under my orders off urgent work for the purpose of calculating such particulars as I have left blank, because they are not found essential to the designing of ships in this office. Moreover, they may all be calculated from the drawings already in the possession of Captain Coles, if they are really required.

3. The height of the new bulwarks of the "Pallas" above the upper deck is 3 ft. 6 in., the extra weight incurred by completing the upper deck and making consequent alterations is nearly 70 tons, and the increased consequent immersion 3 inches.

I submit that, if their Lordships approve of Captain Coles preparing for them the design of a vessel, he should be informed as above; but in the absence of Sir F. Grey it is probably desirable that I should state that at a recent interview Captain Coles informed Sir F. Grey that he wished to avoid the responsibility of designing a turret-ship as a whole, he not being a naval architect, and that it was with this understanding that the drawings of the "Pallas" were asked for by him. I mention this fact to their Lordships because Captain Coles now says, "I am perfectly ready to design a vessel representing my views," and unless their Lordships purpose accepting this offer, it would appear desirable in framing the answer to Captain Coles to remind him of this understanding with Sir F. Grey. Before this is done, however, I would submit that Sir F. Grey's opinion should be taken upon Capain Coles' letter and this submission.

(signed) *E. J. Reed,*
For the Controller.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 15 November 1864.

WITH reference to your letter of the 5th instant on the subject of the preparation of a design for a sea-going cupola ship, I am commanded by my Lords Commissioners of the Admiralty to acquaint you, that there appears to be a slight discrepancy between the second paragraph of the said letter in which you state "that you are perfectly ready to design a vessel representing your views, for their Lordships' consideration," and the statement you made in conversation with Sir F. Grey, "that you were not prepared to design a ship, not being a ship-builder, &c."

To prevent any misunderstanding, my Lords desire you will inform them, whether you are prepared to design a sea-going vessel wholly and entirely for the purpose of carrying one or more turrets, or whether you would prefer a vessel being designed in the office of the Controller of the Navy, capable of being adapted to the turret plan.

Their Lordships request to be informed on this point before taking any further steps.

I am, &c.
(signed) *W. G. Romaine.*

Captain C. P. Coles, R. N.,
Yarborough Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Sea-going Turret-Ship.

Yarborough Villa, Ventnor, Isle of Wight,
Sir, 22 November 1864.

WITH reference to your letter of the 15th instant, in answer to mine of ten days' previous date, in which I requested the use of a competent draughtsman and necessary information respecting the drawings of the "Pallas," to enable me to produce drawings of my views as to a sea-going turret-ship of her class, you inform me there appears to be a slight discrepancy between my conversation and a paragraph in my letter. I fear an erroneous impression has arisen, from only a part of the conversation being quoted, although the words are no doubt correct, viz., "that I was not prepared to design a ship," and "not being a ship-builder:" but to this should be added, "without the assistance of a competent draughtsman, or naval architect," which if not the actual words I made use of, were the tenor of my conversation; however, let me repeat this, and the general purport of my conversation with Sir F. Grey and others, and further that I assurred Lord C. Paget I was no more a ship-builder than he or the Controller of the Navy was.

On the 8th ultimo, the subject of designing a sea-going cupola ship being broached, Sir F. Grey offered me the drawings of the "Bellerophon," but finding that she was upwards of 4,000 tons, I remarked that she was *a much larger vessel* than I required, and requested instead the drawing of the "Pallas." Mr. Reed opposed this, but after some time I was promised them with the necessary weights and calculations, and likewise all necessary assistance to enable me to put before their Lordships my views of a sea-going turret-ship. I wrote officially for these drawings on the 10*th November*, and on the 29*th* I received them with a letter stating that the ship was to have another deck (entirely altering her character), but certain most essential dimensions and weights were omitted.

October is meant.

I wrote for these, enclosing a list of what I required, and begged to be supplied with a competent draughtsman. I received no answer to my requests,* but the question of a discrepancy between one paragraph in my letter, and one sentence in my conversation, is raised. Let me at once dismiss this, by assuring their Lordships I regret I should have been misunderstood, and I will now state what my intentions *were* and *are*, viz.,—I am quite ready to design a turret-ship with proper assistance, and to do all I can further to develope and solve the problem of carrying the *heaviest* ordnance in a sea-going ship, for I might remark here that the turntable and turret principle is no longer a theory, but having been brought to practice, the question is now filtered down to a mere comparison

* *See* Admiralty Letter of Nov. 3, and Captain Coles's Letter of Nov. 5, and Admiralty Letter of the 15th.

parison as to which is the best of the two systems, the turntable with central armament, or guns on the extreme of the broadside. The decision on this point, and the further adaptation of my principle rests with their Lordships, I can only respectfully make my humble suggestions, and use all my endeavours to overcome any difficulty that may present itself. The only great difficulty which I see at present is, that the Constructor of the Navy is opposed to the turret system, which he has publicly denounced, and is a strong advocate of his own rival scheme. However, I see a way which I hope will remove even this difficulty, and I beg, so as to prevent any further mistake, to make the following propositions to their Lordships:—

1st. That I will, with the assistance of a competent draughtsman and naval architect, design a sea-going turret-ship, to compete with any ship Mr. Reed has built or is building; that she shall be equal, if not superior to any one of them in the essentials of a man-of-war, in speed, defence, sea-going qualities, and decidedly superior in offensive powers.

Note.—I would beg to remind their Lordships, that a smaller and cheaper class than "Bellerophon" is more applicable to the turret principle, and that the "Pallas" class would be far better.

2dly. I will guarantee the same result as above, if I design a sea-going turret-ship in conjunction with one of the many eminent ship-builders in England whom I shall name.

3dly. That in both or either of the above cases, the designs shall be submitted to be reported on by a committee of naval officers and eminent ship-builders, half of whom I shall nominate.

Although I have been informed that their Lordships have no intention, at present, to order the construction of a sea-going turret-ship until the end of the financial year, yet, as it will take some little time after it is decided what class of vessel is required, I hope their Lordships will give me an early reply to my proposals.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C.B.,
&c. &c. &c.

The Secretary of the Admiralty to Captain *Coles*.

Sir, Admiralty, 24 November 1864.

I HAVE received and laid before my Lords Commissioners of the Admiralty your letter of the 22d instant, and I am commanded to acquaint you, that my Lords having received from you an assurance of your readiness to prepare a design for a sea-going turret-ship, with proper assistance, will give you the aid of a competent draughtsman, to enable you to produce such a design.

My Lords do not think it necessary to discuss the matters alluded to in your letter, but they wish you to understand that their object is not to institute a comparison with any other vessel, but to obtain a ship, combining an armament of the heaviest guns, with high speed and good sea-going qualities.

Upon receiving from you the design you may produce, my Lords will take such steps as may seem to them necessary, for ensuring an impartial and unbiased examination of its merits; but they cannot consent to submit it to such a committee as you propose, or to be bound by the opinion which such a committee might express.

I am, &c.
(signed) *C. Paget.*

Captain C. P. Coles,
Yarborough Villa, Ventnor.

REPORT of Controller of the Navy.

Sea-going Turret-ship.—Captain Coles.

Controller, Admiralty, S.W., 30 November 1864.

WITH reference to the accompanying letter from Captain Coles, dated 22d instant, I beg leave to state that Captain Coles applied by letter, dated 10th October, for the drawings and weights of the "Pallas." These drawings were put in hand immediately, and on the 27th October, as soon as they were ready, they were forwarded, with a statement of weights, for transmission to Captain Coles, for his information. Captain Coles complains that in this answer to his application *certain most essential dimensions and weights were omitted.* I beg leave to state that the information given was all that he appeared to ask for, and all that it was thought he would require; no information was designedly withheld from him; and when, on the 5th November, he applied for a more detailed statement of dimensions and weights, the particulars for which he asked were, as far as the calculations in the office could furnish, as soon as possible forwarded in the Controller's submission of 10th November 1864 to be transmitted to him.

(signed) *F. K. Barnes,*
For Chief Constructor.

This appears to me to be a correct statement of what passed in my absence.

(signed) *Rob. Spencer Robinson.*

Captain *Coles* to the Secretary of the Admiralty.

A Draughtsman.

My Lord, Yarborough Villa, Ventnor, 1 December 1864.

I HAVE the honour to acknowledge your letter of the 24th ultimo, informing me that their Lordships will give me proper assistance and a competent draughtsman, to enable me to produce a design of a sea-going turret-ship. Awaiting further information as to the draughtsman,

I have, &c.
(signed) *Cowper P. Coles.*

Rear Admiral
The Right Hon. Lord Clarence Paget, C.B.,
&c. &c. &c.

Captain *Coles* to the Secretary of the Admiralty.

"Sea-going Turret-ship."—Weights and Particulars of "Pallas."

My Lord, Yarborough Villa, Ventnor, 13 December 1864.

I AM obliged by your letter of the 12th instant, acquainting me that Mr. Scullard, chief draughtsman at Portsmouth Dockyard, has been told off to assist me in completing the designs of a sea-going turret-ship, which shall at once have my attention.

As it would save the draughtsman and myself much labour and time, I must again ask if I might have the weights and particulars of the "Pallas," of which I enclose a copy, which I asked for in my letter of the 5th ultimo; and in addition I would ask for the sheer drawings and general weights of the "Prince Albert" as now fitted, for I believe that something between these two vessels will be the one I shall propose.

I have, &c.
(signed) *Cowper P. Coles.*

Rear Admiral the Right Hon.
Lord Clarence Paget, C.B.

Report of Controller of the Navy.

Sea-going Turret-Ship.

Dimensions and Weights of "Pallas," and "Prince Albert," for Captain Coles.

Admiralty, S. W., 15 December 1864.

With reference to the accompanying letter from Captain Coles of the 13th instant, I beg leave to refer their Lordships to my submission of the 10th ultimo, and to forward herewith a copy of the statement of dimensions and weights of the "Pallas" which was enclosed therein, and submit that this statement of weights may be forwarded to Captain Coles, and that he be informed it contains all the particulars he has asked for, so far as they can be furnished from calculations in this office, and that those which have been omitted are never found necessary in this department, but that they can be calculated, if required, from the drawings already in Captain Coles' possession.

By some error, the Paper sent to the Secretary of the Admiralty for Captain Coles, dated 10 Nov., was not forwarded to him.

The sheer drawings, &c. of the "Prince Albert" will be prepared and sent to the Board for transmission to Captain Coles as soon as they are ready.

(signed) *Robt. Spencer Robinson.*

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 16 December 1864.

In reply to your letter of the 13th instant, I am commanded by my Lords Commissioners of the Admiralty to transmit to you the accompanying copy of the statement of dimension and weights of the "Pallas," containing all the particulars you asked for, so far as they can be furnished from calculations in office; observing that those omitted are never found necessary in the Department of the Controller of the Navy; but they can be calculated, if required, from the drawings in your possession.

The sheer drawings of the "Prince Albert" are in course of preparation, and will be forwarded when ready.

I am, &c.
(signed) *W. G. Romaine.*

Captain C. P. Coles,
Yarborough Villa, Ventnor.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 24 December 1864.

I am commanded by my Lords Commissioners of the Admiralty to transmit to you herewith, the sheer drawing and general statement of the weights of the "Prince Albert," which were alluded to in my letter of the 16th instant.

I am, &c.
(signed) *W. G. Romaine.*

Captain Cowper Coles,
Yarborough Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Armament of "Pallas."

Sir, Yarborough Villas, Ventnor, 4 January 1865.

As I find on going into the drawings of the "Pallas," that there is some discrepancy in the armament, it being given in the list of weights as four 6¼ tons guns, and two 110-pounders, and on the sheer drawings as only five guns, I shall be obliged by your acquainting me, what her armament is to be.

And shall also be obliged if I may have the midship section of the "Bellerophon," showing the mode of framing in iron, as the "Pallas" is of wood.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, &c., C.B.
&c. &c. &c.

The Secretary of the Admiralty to Captain *Coles*.

Sir, Admiralty, 6 January 1865.

Having laid before my Lords Commissioners of the Admiralty your letter of the 4th instant, respecting a supposed discrepancy in the drawings, &c. of the "Pallas" in regard to the armament, I am commanded by their Lordships to acquaint you, that the armament is that stated in the lists of weights furnished by the Controller's Department, viz.: 1. Drawing.

4 - - - - 6¼ ton guns.
2 - - - - 110-pounder.
6 guns.

And that the "sheer" drawing sent by that department refers only to the five guns that are protected, viz. four in the battery, and one forward. A drawing of the midship section of "Bellerophon" is herewith enclosed for your information as requested, and their Lordships will be glad if you return it when copied.

I am, &c.
(signed) *W. G. Romaine.*

Captain Coles, R.N.,
Yarborough Villa, Ventnor.

Captain *Coles* to the Secretary to the Admiralty.

Sir, Yarborough Villa, Ventnor, 24 January 1865.

I find it necessary, to complete the drawings of a sea-going ship, to have the following weights of Her Majesty's Ship "Pallas."

Weight of boilers,
" engines,
" shaft and screw.

And shall feel obliged if I may have them forwarded.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C.B.
&c. &c. &c.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 27 January 1865.

WITH reference to your letter of the 24th instant, I am commanded by my Lords Commissioners of the Admiralty to send you the following particulars respecting Her Majesty's Ship "Pallas."

	Tons.
Weight of boilers - - - - - - - -	174
Water in boilers - - - - - - - -	84
Engines (and water in surface condensers) - -	185
Shaft and screw - - - - - - - -	55

I am, &c.
(signed) *C. H. Pennell,*
Pro Secretary.

Captain Cowper Coles,
Yarborough Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Weight of "Bellerophon's" Hull.

Sir, Yarborough Villa, Ventnor, 21 January 1865.

I BEG to enclose a tracing of part of "Bellerophon's" midship section, and shall be obliged if I may have the figured dimensions of the frames, inner skins, and number, angle irons, backing, and armour plate, and all those parts marked with a red cross at water-line, and the estimated weight of hull.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C.B.
&c. &c. &c.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 28 January 1865.

IN reply to your letter of the 24th instant, I am commanded by my Lords Commissioners of the Admiralty to transmit to you, on the other side hereof, the particulars as to the dimensions of the frames, plates, &c., and weight of the "Bellerophon," requested by you, which my Lords presume are required by you with reference to the cupola ship you are engaged in designing; but it is to be understood that this information, as well as that formerly sent to you, is solely for your own use, and, as you were informed on the 11th October last, is not to be made public.

I am, &c.
(signed) *W. G. Romaine.*

Captain C. Coles,
Yarborough Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Model of Sea-going Ship.

Sir, Yarborough Villa, Ventnor, 3 February 1865.

As the drawings of the sea-going turret-ship are progressing, I shall be obliged if the modeller at Portsmouth Dockyard may get out a block model to be able to judge better of her form.

I have, &c.
(signed) *Cowper P. Coles.*

W. G, Romaine, Esq., C.B.
&c. &c. &c.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 8 February 1865.

WITH reference to your letter of the 3d instant, I am commanded by my Lords Commissioners of the Admiralty to acquaint you that directions have been given for the modeller at Portsmouth Yard to prepare a block model of the sea-going turret-ship which you are designing.

I am, &c.
(signed) *W. G. Romaine.*

Captain C. Coles,
Yarborough Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Yarborough Villa, Ventnor, Isle of Wight,
Sir, 3 February 1865.

I HAVE the honour to acknowledge your letter of the 28th ultimo, giving some particulars as to the dimensions of the frames, plates, &c. of the "Bellerophon," but as the estimated weight of hull is given *inclusive* of armour and backing, I shall be obliged if I may have it *exclusive* of armour and backing to assist me in the designs of a sea-going ship.

With reference to your remarks that the information given me is for my own use and not for publication, I beg to acquaint you that is perfectly understood; but as a correct description of the "Bellerophon's" target has already appeared in an American publication, I beg to call your attention to enclosed extracts.

I have, &c.
(signed) *Cowper P. Coles.*

The Secretary of the Admiralty to Captain *Coles*.

Sir, Admiralty, 9 February 1865.

WITH reference to your letter of the 3d instant, I am commanded by my Lords Commissioners of the Admiralty to acquaint you, that the weight of armour plates on the "Bellerophon" will be 1,073 tons, and of wood backing 200 tons. The weight of the hull, exclusive of armour and backing, will, therefore, be 3,260 tons.

I am, &c.
Capain C. Coles, (signed) *W. G. Romaine.*
Yarborough Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Sea-going Turret-ship.

Sir, Yarborough Villa, Ventnor, 3 April 1865.

I HAVE the honour to enclose you drawings of a vessel of the same class as the "Pallas," which I hope may meet their Lordships' wishes, contained in your letter of the 24th last November, pointing out that they were desirous of obtaining "a ship combining an armament of the heaviest guns, with high speed, and good sea-going qualities."

My directions to their draughtsman, Mr. Scullard, have been to fulfil these conditions, and he assures me, that this ship will have a speed of 13·8 knots, carrying two 600-pounders. On the plans are also shown two 300-pounders, and four smaller guns; but this plan I think out of the question.

This vessel has a belt which differs from the one proposed by me in 1861, inasmuch that it does not extend the whole length of the ship, but ends 25 feet from the stern, where the plating is run across on a thwartship bulkhead; by this arrangement, having only to plate a distance of 27 feet instead of both bows, 28 ft. 6 in. × 2 = 57 feet, there is a saving of weight, as well as keeping the weights from the extreme of the bow, which will improve her as a sea-boat, without diminishing materially her defensive powers.

The portion of the bow before the belt is in cellular compartments, which would be much more unsinkable than if plated with only 4 and 3-inch iron.

This vessel's belt stops 25 feet from the stem, but I believe keeping all vessels bows light, particularly those with fine lines, is of so much importance, that in some cases, I would leave the belt off altogether before the box, trusting to water-tight compartments for the fore-end, merely retaining the belt aft to protect the rudder-head and steering apparatus, and trimming the ship by the position of the box and turrets.

The armour-plating and backing of this vessel is equal in strength to that of the "Bellerophon," with 1-inch plating on her decks, and supposing that Mr. Scullard is right in his calculations as to her being able to carry it, with a speed of 13·8 knots, she will be a most formidable vessel.

With reference to the tonnage of this vessel and the "Pallas's," it will be seen they are nearly of the same dimensions; but although the turret-ship has less beam, and draws 1 foot 9 inches less water, she is apparently 37 tons larger; this arises from the different mode of measuring wooden and iron ships for tonnage, as explained by the accompanying description of the turret-ship made by Mr. Scullard, which shows that this ship, being built of iron, measures 2,409 tons, but if she were built of wood, she would measure only 2,193 tons, or 216 tons less.

General dimensions, &c. are—

	"Pallas."		Turret-ship.	
	Ft.	*in.*	*Ft.*	*in.*
Length between perpendiculars - - -	225	0	225	0
Ditto keel for tonnage - - - -	187	0	187	8⅝
Breadth, extreme - - - - -	50	0	49	0
Ditto, for tonnage - - - - -	48	9	48	10
Ditto, moulded - - - - -	48	1		
Depth in hold - - - - - -	16	5	20	2
Draught of water - - - - -	24	3	22	6
Burthen in tons (builders) - - - - Difference 37 tons.	2,372		2,409	
Thickness of armour - - - - -	0	4½ in.	6 in.	
Armaments - - - - - -	four 100-prs. two 110-prs.		two 600-prs.	
Weight of broadsides - - - - -	310 lbs.		1,200 lbs.	

It is for their Lordships to decide whether this vessel meets their views. I am strongly in favour of the 600-pounders, and although her guns would be the heaviest yet made in this country, it may appear that only two guns for a vessel of 2,400 tons is disproportionate. Considering this, I am prepared to produce drawings of a vessel of the same speed, but having double the offensive power, viz. four 600-pounders, when I find it only necessary to increase her tonnage to 3,400 tons, or one-half more.

I have thought it right to mention this, in case their Lordships might deem the 2,400-ton vessel too expensive in comparison to the armament, or in case it should be thought she should not possess the speed estimated by their draughtsman.

Being no ship-builder, on these points I can give no opinion, but I beg to bear testimony to Mr. Scullard's having shown the greatest desire to meet my views, and, as far as I can judge, every and all credit is due to him for the accompanying designs, which I now submit, relying upon their Lordships' promise of ensuring an impartial and unbiassed examination of their merits; and in conclusion I have respectfully to request, that I may be made acquainted with any objections that may present themselves.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C.B.,
&c. &c. &c.

A General Description of the Sea-going Turret-Ship.

Armament.

To carry two 600-pounders, or two 300-pounders and four 100-pounders.

Armour-Plating.

To have an armour belt 2 feet above and 4 feet below the water line; to be 6 inches in thickness for about 100 feet in midships, and then to taper forward to 4½ inches, and abaft to 3 inches, under the buttock 2 inches.

The armour-plating above the belt in wake of the turret to be 6 inches thick, and to be about 37 feet long.

To have an armour bulkhead at each end of box, composed of 5-inch iron on 10 inches of wood, and lined on the inside with a skin five-eighths of an inch thick.

At the fore-end of the armour belt a transverse armour bulkhead is to be fitted, and composed of 4½-inch iron on 10 inches wood, secured to an iron bulkhead of the ship.

Wood backing for armour belt 10 inches thick, worked longitudinally on the skin plating, and three angle irons, 10 in. × 3½ in. × ½ in., worked horizontally between the edges of the wood backing and secured to the skin plating and angle iron frames of the ship. The wood backing above the belt, in wake of turret, to be 10 inches thick, worked vertically.

The lower-deck beams are to be covered with 1-inch plating from the foremost armour bulkhead of box to the fore-end of belt, and to terminate at the 4½-inch armour of the foremost transverse bulkhead, or it may be carried forward to the stem, also from the after-armour bulkhead of box to the stern of the ship. The top of the box on the upper dock beams is also to be covered with 1-inch plating from armour bulkhead to armour bulkhead.

Frames behind Armour.

The frames of the ship behind the armour-plating are composed of angle irons 10 in. × 3½ in. × ½ in., with two angle irons 3½ in. × 3½ in. × ½ in. on the outside edge of each, the three being rivetted together, composing one frame; and to the double angle irons of the frames the skin is secured. These frames are placed 2 feet apart, from centre to centre. The skin is in two thicknesses, each ¾ in. thick, making together 1½ inch, and between them is placed a layer of painted canvas.

Water-tight Compartments.

The bow of the ship, the foreside of the armour belt, and foremost transverse bulkhead, is divided into numerous water-tight compartments, also at the stern, in the vicinity of the tube, for the screw shaft. The hold is divided into numerous compartments, and vertical longitudinal skin is worked, leaving a wing passage on both sides of the ship, and this wing passage is made into water-tight divisions of about 20 feet each, by athwartship bulkheads, and these are fitted with water-tight man-hole doors.

Tonnage of the Ship.

The ship being constructed of iron, in calculating the tonnage by builders' old rule, the whole breadth is taken, whereas if the ship had been constructed of wood, the average thickness of the plank of the bottom would be taken, and added to her moulded breadth, gives the breadth for tonnage; so that the excess of the thickness of the wales above the thickness of bottom plank is deducted thus:—

	Iron Ship.		Wood Ship.	
	Ft.	*in.*	*Ft.*	*in.*
Length for tonnage - - - -	187	8⅝	191	8
Breadth, extreme - - - - -	49	0	49	0
„ for tonnage - - - -	48	10	47	5
Burthen in tons - - - - -	2,409		2,193	

Preliminary Report of Controller of the Navy.

Sea-going Turret-ships—Captain *Coles.*

Admiralty, S.W., 8 April 1865.

As a minute examination of a design for a ship of war will take considerable time, I think their Lordships will prefer to receive at once a preliminary report on Captain Coles' design, and a more complete one hereafter, when all parts of the plan shall have received a thorough and careful examination.

With this view, I proceed to deal with Captain Coles' letter; and I must preface my report by observing that, in forwarding his design, he has more than once put forward an alternative which, if adopted, would modify to a greater or less extent the conditions required, and which he appears to have fulfilled satisfactorily.

For this reason, I propose entirely to overlook the alternative proposals, of the first of which, marked A., he says himself, "This plan I think out of the question."

The second alternative, marked B., is to build a larger ship to carry four 600-pounders.

A third alternative, marked C., of no great moment, as to the carrying more or less forward, the deck-plating, is for the same reason dismissed from consideration; and, confining myself to the plan on which the drawings and calculations are made, I am bound to say that there appears to be no difficulty in constructing a ship in the manner proposed (subject as I have already mentioned, to a more minute and careful examination than there has yet been time to give), provided certain fundamental principles are agreed to by their Lordships.

The ship, I may briefly say, is to be built of iron; the dimensions and tonnage do not differ much from the "Pallas;" the draught of water aft is less; it is proposed to propel her by engines similar to those of that ship, and the speed reckoned upon is about 13·8 knots.

The proposed armament is to consist of two 600-pounders, or 20-ton guns, in a revolving shield, enclosed in a box.

The system of armour-plating consists of a narrow belt of 6-inch iron, 2 feet above and 4 feet below the water-line, except at the box part, where it is carried up to the upper deck.

The thickness of 6 inches is gradually reduced to 3 inches abaft, and to 4½ inches forward, until within 25 feet from the stem, when it ceases altogether, the safety of the ship being provided for by cellular compartments.

A very strong iron deck is introduced at the level, where the armour belt ends.

The frames, teak backing and skin of the ship, appear all to be of sufficient strength.

There are also numerous water-tight compartments throughout the ship, but on these structural details it is not yet possible to pass an opinion.

The ship is masted with tripod masts, and carries a large quantity of sail.

Offensive power of the armament.

The two features, however, on which the whole design hinges, are the offensive power of the armament, and the defensive power of the plating.

The first question requires the most serious attention of their Lordships.

The whole armament for offensive purposes consists of two 20-ton guns, or 600-pounders, as Captain Coles prefers to call them.

These guns, enclosed in a revolving turret, cannot fire exactly right ahead or right astern, though they have otherwise a very large and quite exceptional power of training; but it will naturally occur to their Lordships, that as the guns can only fire on one side at a time, when engaging on both sides, such a ship would be at a considerable disadvantage, if attacked by more than one enemy.

I by no means say that this is a fatal objection to the plan, but I think it is a disadvantage.

All the armament being in one turret, makes a catastrophe possible, though not probable; a jammed turret, or a shell exploding within it, would perhaps destroy the offensive power entirely.

This too, though not fatal, is a disadvantage.

The guns are unknown and untried, and the propriety therefore of designing a ship for that armament and for nothing else, is the important question for their Lordships' decision.

Can guns of this size be loaded, pointed, and worked, even in a turret, with the precision and quickness required in action at sea?

No doubt that they can be so used in smooth water against fixed objects on shore, but it is for their Lordships to decide whether there is sufficient ground for believing that when ships meet ships at sea in rapid motion, both on and through the water, the requisite rapidity of handling such guns can be secured.

Guns of less weight will pierce even 6-inch armour-plates, and the question is whether more numerous and lighter guns would not be a better armament than that proposed in the design.

The defensive part of the design.

The defensive part of the design has important features; the bow, like the "Warrior's," or "Hector's," is undefended at the water-line, and the narrowness of the plating above the water-line, except at the box enclosing the turret, is not without its danger.

The iron decks, and thwartship armour-plated bulkheads, are great mitigations of this danger; but it should be clearly understood that ships partially armour-plated to a small height above the water-line only, are not so secure from plunging and raking shot as ships wholly plated, or even plated up to the beams of the battery deck, and that though it may be wise to make that sacrifice of security for the sake of obtaining good sea-going qualities, it is a sacrifice, and a very considerable one.

The non-plating of the bow at the water-line should be the subject of the most serious consideration of their Lordships, and before accepting (with our present knowledge) so manifest an imperfection, should, I submit, be the subject of careful experiment, by constructing an exact model of the bow of the ship, and testing what becomes of the cellular compartments under fire, at Shoeburyness.

The sea-going qualities of the ship I believe will be very good; her sail power appears sufficient, and carefully arranged.

Whether the advantages to be derived from this power are equal to the disadvantages in action, and at other times, will require a careful study and more time than I have yet had for the consideration of these drawings.

Some of the conclusions I have come to may be modified when the whole plan has been maturely considered; but, as a general and preliminary outline of my opinion upon the design, I trust this report may be satisfactory to their Lordships.

The points raised by Captain Coles about tonnage, are of no practical importance.

(signed) *Rob. Spencer Robinson.*

FOR Copy of Letter of 27th April 1865, to Earl of Lauderdale, *see* page 3.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 27 April 1865.

I AM commanded by my Lords Commissioners of the Admiralty to acquaint you that a Committee, composed of the officers named in the margin, has been appointed to examine the designs for a sea-going turret-ship submitted by you, and after taking such evidence as they may think necessary, to report to their Lordships their opinion on the following points:—

Vice Admiral the Earl of Lauderdale, *Chairman.*
Rear Admiral Yelverton.
Captain Caldwell.
" Kennedy.
" Phillimore.
Mr. Arthur Price, *Secretary.*

1. The probable sea-going qualities of the proposed vessel, including stowage, accommodation for officers and men, with other essential points.

2. The armament.

3. The amount of protection afforded by the armour plating.

4. The advantages or otherwise of the proposed masts and rig at sea and in action.

If you should be unable to attend at the Committee when your presence should be required, to explain your plans or answer any objections, you may depute some person to make those explanations, and full opportunity will be given you of considering and answering any objections.

I am, &c.
(signed) *C. Paget.*

Captain Coles,
Yarborough Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Committee on Sea-going Ship.

My Lord, Ventnor, 29 April 1865.

I HAVE the honour to acknowledge the receipt of your letter of the 27th instant, acquainting me that a Committee had been appointed to examine the design for a sea-going turret-ship. I regret it should have been formed without reference to me, and must respectfully protest against any Committee of which I have not the nomination of a due proportion of the members, as stipulated in my letter to their Lordships of 22d November 1864.

I have, &c.
(signed) *Cowper P. Coles.*

To Lord Clarence Paget,
&c. &c. &c.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 2 May 1865.

I HAVE received and laid before my Lords Commissioners of the Admiralty, your letter of the 29th ultimo, objecting to the Committee nominated by their Lordships to examine your design for a sea-going turret-ship; and I am commanded to remind you, that on the 24th November last you were informed, in reply to your communication of the 22d, that the assistance of a draughtsman would be given you, and on receipt of the design you might produce, their Lordships would take such steps as might seem to them necessary for insuring an impartial and unbiassed examination of its merits, but that they could not consent to submit it to such a Committee as you proposed.

My Lords see no reason to depart from the resolution then communicated to you; and to carry out their intention of having the plans carefully and impartially considered, they have directed them to be submitted to a Committee of competent naval officers, who are free from any personal or professional bias. Upon receiving their report, my Lords will be enabled to form their own opinion, and to decide whether the plan offers those advantages which alone would justify them in adopting this novel mode of sea-going ships.

I am at the same time to observe that the Committee has been directed to give you the fullest opportunities of explaining your plans and answering any objections that may be made to them.

I am, &c.
(signed) *W. G. Romaine.*

Captain C. Coles,
Yarborough Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Sir, Ventnor, 3 May 1865.

IN reference to your letters of yesterday's date, I beg to inform you that my medical adviser has prohibited my entering into any business matters for a few days.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C.B.
&c. &c. &c.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 8 May 1865.

I AM commanded by my Lords Commissioners of the Admiralty to acquaint you that they have received an application from the Committee appointed to inquire into the merits of your plan of a sea-going turret-ship, for your attendance, or that of some person to represent you if you are unable to attend, on Thursday, the 11th instant, at 12 o'clock, and my Lords would be glad to be informed what course would be the most agreeable to you.

I am, &c.
(signed) *W. G. Romaine.*

Captain C. Coles,
Yarborough Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Sir, Ventnor, 8 May 1865.

I HAVE the honour to acknowledge your letter of the 8th instant. Pray convey my thanks to their Lordships for wishing to consult my views respecting my attendance on the Committee on the 11th instant. I am still confined to my room, and regret being unable to name any person to represent me.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, C.B.,
&c. &c. &c.

Captain *Coles* to *the Secretary of the Committee.*

Sir, Ventnor, 20 June 1865.

ON again reading over the correspondence that has passed between the Committee and me, I find from your last letter, declining to give me the evidence upon which the objections have been based, that in speaking of the instructions given by the Admiralty to the Committee, you say they were directed to allow me "full opportunity of considering and answering any objections," whilst in a letter from the Admiralty to me of May 2d, they say, "the Committee has been directed to give you the fullest opportunities of explaining your plans and answering any objections that may be made to them."

I have therefore thought it right to call your attention to this, and respectfully to point out to the Committee, that in addition to the reason assigned by me, in my last letter, for not defending the summary of 36 objections raised by the evidence, I do not think the Committee are giving me the "fullest opportunities of answering any objections that may be made to my inventions," when they keep from me the evidence upon which those objections are raised.

I am the more induced to point this out, as, on looking over those objections, I feel that, if given the fullest opportunities, I can answer them most satisfactorily, and am perfectly ready to do so; but I must decline answering a mere summary of objections in absence of my knowing upon what evidence they have been raised, and thus being denied the "fullest opportunities" of doing justice to myself and this public question. I am sure the Committee will forgive me for again appealing to them to give me the fullest opportunities of defending my inventions, and pray convey to them my full assurance that, whatever their decision may be, I feel satisfied it will be only dictated by the most honourable desire to do me, and this question upon which so much is pending, every justice.

I have, &c.
(signed) *Cowper P. Coles.*

A. Price, Esq.,
Secretary.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 23 June 1865.

I AM commanded by my Lords Commissioners of the Admiralty to acquaint you that they have received from the Committee appointed to report on your design for a sea-going turret-ship, a copy of your letter of the 20th instant, again appealing to the Committee to give you the fullest opportunities of defending your inventions. My Lords have much regretted that the state of your health has prevented your attendance before the Committee, and that you were also unable to depute any person in your place.

Under these circumstances their Lordships have not considered it desirable that the proceedings of the Committee, composed of officers whose services are urgently required elsewhere, should be protracted; and as you did not feel yourself able to answer the objections laid before you without an opportunity of perusing the evidence, their Lordships have desired the Committee to make their report. So soon as their Lordships have had an opportunity of perusing the evidence, they will communicate further with you, with the view of affording you the fullest opportunity of answering the objections raised against your design.

I am, &c.
(signed) *C. Paget.*

Captain Coles, R.N.,
Yarborough Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Turret Ship.

My Lord, Ventnor, 28 June 1865.

I HAVE the honour to acknowledge the receipt of your letter of the 23d instant, informing me that their Lordships will soon be in a position to give me the fullest opportunity of answering the objections raised upon evidence, to my system of working the heaviest ordnance at sea, as well as masting ships.

It is nearly three months since the drawings made by the Admiralty's draughtsman were submitted to you. I now find from the Committee, that my letter of the 10th instant to them, in which I requested to have the printed evidence sent me, was at the time of its receipt referred to the Admiralty; I therefore have to request you will move their Lordships to lose no further time in sending me the evidence upon which these objections have been raised, when I shall be perfectly ready to answer any and all objections that can be raised against my inventions.

In dealing with the question, I do not consider it one between their Lordships and me, but a public and national one, and therefore I beg to assure you, with the greatest respect, that I must treat it as such.

I have, &c.
(signed) *Cowper P. Coles.*

The Right Honourable
Lord Clarence Paget, C. B.
&c. &c. &c.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 7 July 1865.

I AM commanded by my Lords Commissioners of the Admiralty to transmit to you a printed copy of the Report (and Evidence) of the Committee appointed to examine, and report on the plan of sea-going turret-ships as proposed by you.

You will observe, that the Committee do not recommend the construction of a ship upon the design submitted by you.

My Lords propose to give their immediate attention to the important subject, and in the meantime, they will be glad to receive from you any observations you may have to offer on the points raised by the Commitee.

I am, &c.
Captain Coles, R.N., &c. &c., (signed) *W. G. Romaine.*
Ventnor.

The enclosed Report (and Evidence) of the Committee will be found at pages 1 to 111.

Captain *Coles* to the Secretary of the Admiralty.

Committee's Report and Evidence on Sea-going Turret-Ship.

Sir, Auckland Villa, Southsea, 11 July 1865.

I HAVE the honour to acknowledge the receipt of your letter of the 7th instant, enclosing the report and evidence upon a sea-going turret-ship, which has been forwarded to me from my former residence in the Isle of Wight, and I beg you will acquaint their Lordships that I shall be happy to give all assistance in my power towards carrying out the recommendation of the Committee to build a sea-going ship with two turrets.

I am, &c.
W. G. Romaine, Esq., C.B., (signed) *Cowper P. Coles.*
&c. &c. &c.

The Secretary of the Admiralty to the Controller of the Navy.

Controller of the Navy, Admiralty, 7 July 1865.

REFERRING to the recommendation of the Committee on the plan of sea-going turret-ship proposed by Captain Coles, my Lords are desirous of having before them, in a definite shape for consideration, the principles which should be kept in view in attempting to design a sea-going turret-ship.

You are therefore to submit to the Board such points as may appear to you necessary to be decided before commencing the preparation of a design.

By command of their Lordships.
W. G. Romaine.

REPORT of Controller of the Navy on Sea-going Turret-Ships.

Admiralty, 13 July 1865.

THEIR Lordships, by their Minute of the 7th of July accompanying the Report of the Committee of Naval Officers who inquired into the design of Captain Coles for a sea-going turret-ship, have desired me to place before them in a definite shape for consideration the principles which should be kept in view in attempting to design a sea-going turret-ship.

Looking to the evidence given before the Committee, the first point which specially deserves consideration, and upon the decision of which the main features of the design must depend, is the amount of armour-plating for defensive purposes required in a turret-ship. The question at issue between Captain Coles and several witnesses is whether a turret-ship only defended at the water line by an armour-plated belt, is sufficiently defended, or whether a turret-ship requires the same amount of defensive plating as any other ship; that is to say, that the ship's side throughout must first be plated up to the beams of the deck on which the battery, whether in ports or turrets, is to be carried, and then the amount of plating necessary to defend the battery, whether in ports or turrets must be added, to make the defensive power complete.

This question the Committee have not decided.

It will not be necessary for me to point out the reasons why a mere belt is an insufficient protection, the evidence taken before the Committee is quite clear on that head; but as this point is a capital one in connection with the safety of the ship, it will have to be continually referred to.

The question as to one or more turrets seems disposed of by the opinion of the Committee, and by the evidence they have collected. I take it for granted, therefore, that a sea-going turret-ship must carry two turrets.

The position of these turrets is the next important point to decide.

The further the turrets are apart, and the nearer they can be carried to the ship's extremities, with due regard to other things, the more their great and distinctive power of training the guns upon almost every point of the horizon will be developed. The question, therefore, is, is it required that the turrets shall have an uninterrupted range round the bow and stern? To obtain this range of fire there can be no fixed bulwarks forward, no permanent arrangements for the anchors, there ought to be no bowsprit, the turrets should be before the foremast and abaft the mizen mast, and at the stern there should be no davits, or anything upon the gunwale, the decks should slope away from the turrets in a fore and aft as well as in a thwartship line at an angle of 5°.

The necessity for placing the turrets near the extremities to procure this range of fire right round the ship, involves not only the difficulty of getting the extremities of the ship of a shape favourable to speed and to good sea-going qualities, but has an important bearing on the amount of armour plating required. If a belt at the water line is decided upon, each turret must be enclosed by two thwartship bulkheads, descending from the upper deck to a certain distance below the water line, making four such bulkheads in all, and leaving the space between the thwartship bulkheads, in which the engines and boilers will be placed, exposed to all the danger of plunging shot and shot passing over the top of the belt, and penetrating through the deck, into the vitals of the ship. If on the other hand it is decided to plate the whole space between the two turrets up to the deck, a very much larger amount of armour plating will be required than would suffice to establish a large number of broadside guns in battery.

I will roughly estimate the number of superficial feet to be plated in the two systems.

I take it for granted, that to establish an equality in speed and sea-going qualities between the two principles, the ships must be nearly of the same dimensions, which, for the sake of illustration, may be as follows, length 300 feet, breadth 56 feet.

Now the number of superficial feet which must be plated on each ship will be as follows:— A is the broadside ship, and B is the turret ship. A's battery deck is 10 feet out of the water, the upper deck is 17 feet 6 inches out of the water. A is to be plated from 5 feet below the water line up to her battery deck all round, and up to her upper deck for 100 feet of her length; (the "Bellerophon's" plating is only 96 feet long in this part) and 100 feet allows ample room for five guns in broadside ports of 12 or even 15 tons weight, should such a gun be made, and fitted as it can be fitted on a ship's deck.

Now neglecting the 5 feet of armour plating below the water, which is necessarily the same in both ships, the amount of feet to be plated is roughly thus for A—

	ft.
600 feet × 10, that is the length of both sides multiplied by the height out of water = - - - - - - - -	6,000
100 feet × 7·5 × 2 (the battery part) = - - - - -	1,500
56 feet × 7·5 × 2 (thwartship bulkheads to enclose battery) =	840
	8,340

B's deck, on which the turrets stand, cannot be less than 16 feet out of the water; the ship must be plated as far below the water as A, that is, for 5 feet, and this not having been taken into account for A may be omitted for B.

The two turrets, to be effective for firing at all points of the horizon, should be placed with their centres not further than 44 feet from the extremity of the ship, allowing the radius of the turret to be 13 feet, and that the thwartship bulkhead must extend six feet beyond the outside of the turret to give sufficient space round its base, the length of the plated side to enclose the turrets must be 250 feet, and the plating required for B will be roughly as follows—

	ft.
Belt two feet above water line, round the ship 600 feet × 2 = -	1,200
Sides to enclose the turrets 250 feet × 14 × 2 = - - - -	7,000
Thwartship bulkheads, two in number, allowing 50 feet for the narrowing of the ship towards the extremities 50 feet × 16 = 800 × 2 = 1,600 - - - - - - - - -	1,600
Circumference of turrets, 80 feet × 5 × 2 - - - -	800
	10,600

Showing a large excess of plated surface on B over A independent of the deck plating, which B will require more than A.

To obtain, therefore, a fire all round from the turrets, a considerable sacrifice must be made, for it is clear that, if the turrets are brought closer together, the amount of plating may be very much reduced, but the all-round fire will not be obtained, and the extent of deck to be fired over, in order to approximate to a fore and aft fire will be increased, the larger the gun, and especially the larger the rifled gun used, the more will the decks suffer from oblique firing.

If again, as it has been more than once suggested, the fore and aft fire may be dispensed with, and permanent bulwarks established forward, at any rate all the usual arrangements for sea-going ships as to anchors, masts, and bowsprit, may be had recourse to.

It is possible, too, that a forecastle with a revolving gun upon it, might supply the want of a fire on the bow and ahead from the turret.

The effect of the explosion from the heavy guns in the turret, when fired towards the forecastle cannot be foreseen, but something may be learned by making experiments in the "Scorpion."

At all events their Lordships will see that one of the principal points for their decision, is the placing of the turrets.

The height of the battery deck of a turret-ship, intended for sea-going purposes, is an important point. I have assumed it in the rough calculations I have made for ship B to be 16 feet out of water. Considering that the bulwarks in a turret-ship are moveable, and easily damaged, 16 feet of deck is not too much, it is about the same as the "Bellerophon's" upper deck, but I think that the distinction between decks protected by permanently fixed bulwarks, and those without such protection, ought not to be overlooked, and probably their Lordships may decide that the deck should even be higher, in a turret-ship of such dimensions, than 16 feet.

The question of the security of such a ship as that advocated by Captain Coles, must be again referred to. With a belt only two feet out of the water, the safety of the ship depends upon the deck at this level, being able to deflect a shot, and so as to prevent penetration both at small and large angles of incidence.

This point certainly requires to be determined experimentally.

The weak point of a turret being its base, and in certain positions of rolling at sea, this base being only defended by the deck and glacis plates, from a horizontal shot, it would be most desirable to ascertain once for all, by experiment, whether this protection is of any value against heavy shot at moderate distances.

The turret system, however, applied to a sea-going ship, will require the use of tripod masts to develope its powers; the experiment about to be made in the "Wyvern," will throw much light upon the safety of this system.

The size and nature of the gun that it is most advantageous to use in a turret, appear to require a decision from their Lordships, before entering upon the design of such a ship.

I think, if their Lordships would decide the several questions I have submitted to them, that the constructors could enter upon a design that might possibly prove a powerful sea-going turret-ship.

Copy of Capt. Key's Report will be found at p. 167.

Captain Key's valuable report, dated July 11th, has just been sent to me. It is a remarkable confirmation of all the reports and submissions I have made to their Lordships on the subject of turret-ships.

It entirely justifies their Lordships' decision, on my submission of the 7th May 1863.

Captain Key's summing up of the advantages and disadvantages of the turret-ships as sea-going cruisers, is completely in accordance with what has been submitted to their Lordships from this department. After careful consideration of his report, their Lordships will be able to see how far it is possible to decide the principles on which a turret-ship, for sea-going purposes, should be constructed.

I have enclosed two sketches, A and B, to illustrate my remarks on the position of the turrets, and on the amount of defensive plating required on the two systems.

I am, &c.
(signed) *Rob. Spencer Robinson.*

Captain *Coles* to the Secretary of the Admiralty.

My Lord, Auckland Villa, Southsea, 9 Sept. 1865.

Two months having elapsed since the Committee's report on the designs of a sea-going turret-ship were sent in, and a copy of which was forwarded to me, I beg leave to point out that I have received no answer to my reply of July 11th 1865, and again to assure their Lordships of my readiness to co-operate with them in carrying out the suggestions of the Committee to build a sea-going ship with two turrets, and I have respectfully to request an answer at their Lordships' earliest convenience.

I am, &c.
Vice Admiral (signed) *Cowper P. Coles.*
The Right Honorable Lord Clarence Paget, C.B.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 14 Sept. 1865.

I HAVE received and laid before my Lords Commissioners of the Admiralty your letter of the 9th instant, and I am commanded by their Lordships to acquaint you that when they received your letter of the 11th July last, they did not consider that an answer was required.

The design submitted by you for a sea-going ship had been referred to a Committee, and had not been deemed by them suitable for adoption. My Lords, after considering the Committee's Report, determined that the preparation of a design for a sea-going ship, with two turrets, should be submitted to the Department of the Controller of the Navy.

Many important points connected with this difficult problem have been raised for preliminary decision, which must be settled before the design can be satisfactorily proceeded with, and these points are now under their Lordships' consideration. The approaching trials of the "Scorpion" and "Wyvern" may assist in the elucidation of these difficulties.

Should the Controller succeed in laying before their Lordships the outlines of a design which may appear likely to produce a ship, adapted to carry at sea two revolving turrets on your plan, my Lords, before proceeding to carry out the design, will communicate it to you for any observation you may have to offer, an will avail themselves of your assistance in the arrangements of the details.

I am, &c.
Captain Coles, (signed) *W. G. Romaine.*
Auckland Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Sir, Auckland Villa, Southsea, 26 Sept. 1865,

I HAVE the honour to acknowledge your letter of the 14th instant, acquainting me, that after considering the Committee's Report, their Lordships have determined that a design for a sea-going ship, with two turrets, should be submitted to the Department of the Controller of the Navy, and I have respectfully to remark that a similar determination was come to by their Lordships in March 1863, in accordance with which a design was prepared by Mr. Barnaby, one of the Admiralty draughtsmen, in conjunction with me, but nothing since has been heard of it. This was before the two years' successful trials of the "Royal Sovereign," and other turret-ships.

You now say many important points connected with this difficult problem have been raised for preliminary decision which must be settled before the design can be satisfactorily proceeded with. I am kept in ignorance of what they are, and since all the professions made by me have been hitherto verified by the success of the "Royal Sovereign" in her trials during this and last year, I hope that I may be allowed to know what the difficulties are which still appear to arise in their Lordships' minds, that I may have the opportunity of overcoming or explaining them away.

With reference to the approaching trials of the "Scorpion" and "Wyvern" assisting in the elucidation of these difficulties, I must beg you to remind their Lordships that I am in no way responsible for those vessels, and would call their attention to the following copy of a letter, dated November 24th, 1864:—

"My dear Lord Clarence Paget,

"The impression from the public journals appears to be gaining ground, that the Birkenhead rams may be considered sea-going turret-ships, on my principle. As, when I last saw you, I pointed out that they do not represent my views, it is hardly necessary for me to do so now, still, as since they were brought into our service, I have assisted, in some points, in adapting them to our Navy, I wish you distinctly to understand that the application of my turret-system to sea-going ships can in no way be judged of by the performances of these vessels, for it must be remembered that they have been locked up many months—a long time in the rapid strides of a new-born invention,—and I feel confident Messrs. Laird Brothers would bear me out in saying that, if they were asked to design a sea-going turret-ship for the ocean work of our Navy, she would be a very different description of vessel.

"These vessels are 1,900 tons, and carry four heavy 12-ton guns on 16 feet draught of water, while the 'Royal Sovereign' is 3,900 tons, and carries only one gun more on a draught of 26 feet of water.

"The power of carrying such heavy guns into action on so light a draught of water, renders these vessels very valuable for an enemy's coast, where light draught of water is essential; but it can hardly be expected that they should be as well adapted for ocean cruising as vessels of larger tonnage and heavier draught of water, in proportion to their armament, if especially designed for this service.

"I am, &c.
(signed) "*Cowper P. Coles.*"

"The Right Honourable
"Lord Clarence Paget, &c. &c. &c"

THE vessels were brought into the service for political purposes, and since their purchase, even some most important suggestions made by me for the comfort of the crew, have not been allowed to be carried out. I, therefore, must respectfully protest against those vessels in any way being used, to put off building a sea-going ship, or as an argument against the adaptation of the central armament system to crusiers for our Navy.

Extract from a letter from Captain
Coles, dated 5 July 1865.
" I should strongly reccommend that
should be commissioned and sent for
summer cruise before any serious
erations are made, except such as are
ually necessary to take her to sea and
her masts."

In conclusion, allow me to point out that the money voted by Parliament this year to build a sea-going turret-ship will lapse, if these successive delays are allowed to put off the building of one, and to assure their Lordships that I am quite prepared to give my assistance in designing any class of vessel, whether with one, two, or three turrets that they may desire.

I have the honour to enclose a printed copy of my answers and remarks on the Committee's report, which it will be seen by the date I had prepared some time since, and—

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C.B.,
&c. &c. &c.

P.S.—A printed copy of correspondence and answer, I hope to be able to forward to-morrow.

Captain *Coles* to the Secretary of the Admiralty.

Auckland Villa, Southsea,
29 September 1865.

Sir,

I HAVE the honour to enclose you a printed copy of my reply to Committee—correspondence, &c. on sea-going turret—and regret the printer should not have had it ready before.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C.B.,
&c. &c. &c.

COPY of Captain *Coles*' Pamphlet referred to in his Letters of 26th and 29th September 1865.

My Lord, Auckland Villa, Southsea, 12 August 1865.

IN your letter of the 7th ultimo (S.), transmitting to me, by desire of the Lords Commissioners of the Admiralty, a printed copy of the Report (and Evidence) of the Committee appointed to examine, and report on, the plan of a sea-going turret-ship proposed by me, you observe that their Lordships propose giving their immediate attention to this important subject; and acquaint me that, in the meantime, they will be glad to receive from me any observations I may have to offer on the points raised by the Committee. In compliance with the desire of their Lordships, I now proceed to remark upon the subject. In order to render my views clearer to their Lordships, and for private circulation, I have thought it desirable to embody them in print.

I would commence by calling their Lordships' attention to my letter of the 22d November 1864,* addressed to the Secretary of the Admiralty, which was not placed before the Committee, in which I observe:

> " 1st. That I will, with the assistance of a competent draughtsman and naval archi-" tect, design a sea-going turret-ship to compete with any ship Mr. Reed has built, " or is building; that she shall be equal, if not superior, to any one of them in the " essentials of a man-of-war; in speed, defence, sea-going qualities, and decidedly " superior in offensive powers.
>
> " 2d. I will guarantee the same result as above, if I design a sea-going turret-" ship in conjunction with one of the many eminent ship builders in England whom " I shall name.
>
> " 3d. That in both, or either of the above cases, the designs shall be submitted to " be reported on by a committee of naval officers and eminent ship builders, half of " whom I shall nominate." †

Their Lordships closed with me on the first proposition, and the *Pallas*'s drawings were those given me to compete with; and, although the form of my vessel differs materially from her, it will be seen that the general dimensions have been retained to enable a good comparison to be made:

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* The letter will be found at the end of Appendix.

† This last stipulation, as their Lordships are aware, was not, as regards the constitution of the Committee, carried out.

GENERAL DIMENSIONS, &c. &c.

	PALLAS.	TURRET-SHIP.
	Feet.	*Feet.*
Length between perpendiculars	225	228
Keel for tonnage	187	187
Breadth extreme	50	49
For tonnage	41·9	48·10
Moulded	48·1	—
Depth in hold	16·5	20·2
Draught of water	24·3	22·6
Burthen in tons (builders)	2,372	2,409
Thickness of armour	4½ inches.	6 inches.
Armaments	four 100-pounders. two 110-pounders.	two 600-pounders.
Weight of broadside	310 lbs.	1,200 lbs.

I will now proceed to answer the objections raised by the Committee, begging that it may be, throughout, borne in mind that my designs were for a sea-going turret-ship, to compete with the *Pallas.*

"The following objections to the design have occurred to the Committee, and been alluded to by witnesses, in the course of their evidence:

"Admiralty, 5th June 1865.

[*Objection.*]—"1st. That the whole offensive power of the ship, as represented by her "armament, is comprised within one turret, which would be liable to be rendered temporarily or permanently *hors de combat* by one shot or shell, under any one of the following "circumstances."

[*Answer.*]—With reference to this objection: the designs of my ship being simply intended, as remarked above, to compete with the *Pallas,* the single turret was deemed sufficiently formidable for that purpose. A ship with two turrets, as is implied by the Committee, would unquestionably be more formidable.*

I would beg to call their Lordships' attention to my letter of April 3d of the present year, accompanying the designs, where I mention that I am prepared to produce drawings of a vessel of the same speed, 13·8 knots, but having double the offensive powers (viz. four 600-pounders), without increasing her tonnage beyond 3,400 tons.

[*Objection* 1, *a.*]—"The possibility of a steel shot or shell entering the top of the turret "when the vessel was rolling towards her enemy, or exposed by plunging fire from a "battery."

[*Answer.*]—Such a possibility exists, but is very remote, because the top of the turret is 16 feet out of the water, whilst the *Pallas*'s guns are only nine feet. This would greatly decrease the chances of the top of the turret being hit, and would require a good roll to bring the top of the turret on a level with the *Pallas*'s guns; but as it must be assumed that each ship would be rolling equally, and as the *Pallas* would have to be on an even keel at the moment of firing, whilst the turret-ship rolled sufficiently deep at the same instant towards her, to enable the top of the turret to be hit, it evidently is a very remote and unlikely contingency to occur, as stated more than once in the course of evidence (*see* Plate I. Figure 1). Besides, the area of the top of the turret and its protection must be compared with that of the *Pallas*' square-box:

	Sqr. feet.
Area of top of turret	505
Area of top of *Pallas*' square-box	1,872

The top of the turret is protected by half-inch iron, supported on I beams, 4″ × 4½″ × 3″ × ½″, only two inches apart, whilst the top of the *Pallas*' square-box is protected by ⅜″ iron, supported by iron beams, averaging three feet apart, and consequently incomparably weaker than the top of the turret. It is also important to remark, that whilst the guns of the turret-ship are on a level with the top of the *Pallas*' square-box, the *Pallas*'s guns are about seven feet lower than the top of the turret, and would have to be elevated, as is shown in the accompanying diagram, so that there would manifestly be a much greater chance

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* A two-turret ship was designed in 1863 by Mr. Barnaby, Admiralty draughtsman, under my superintendence, but nothing more has ever been heard of her.

PLATE I.

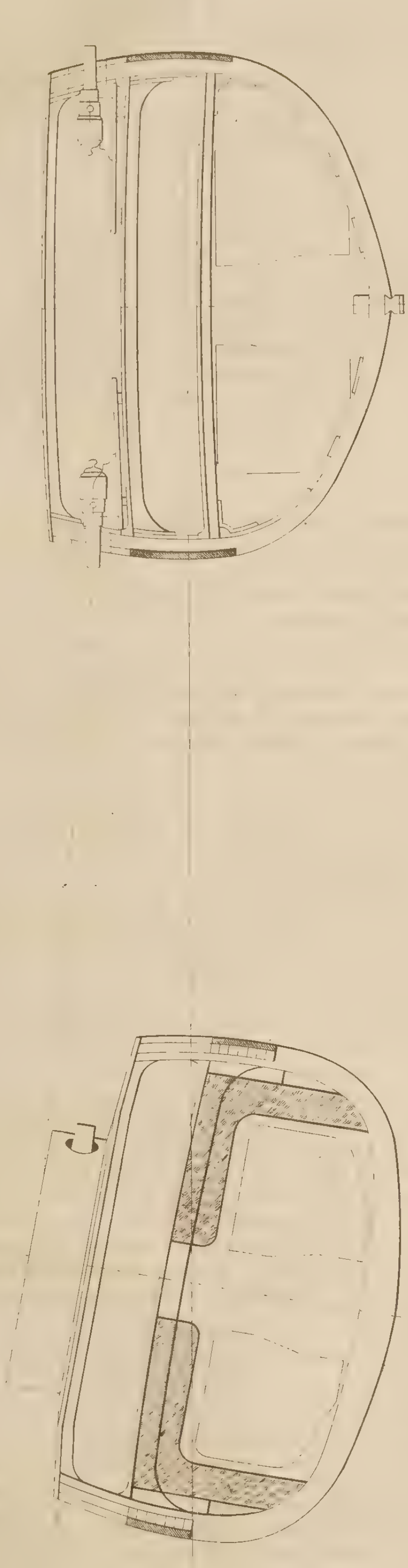
PALLAS.
TURRET SHIP.

FIG. 1.

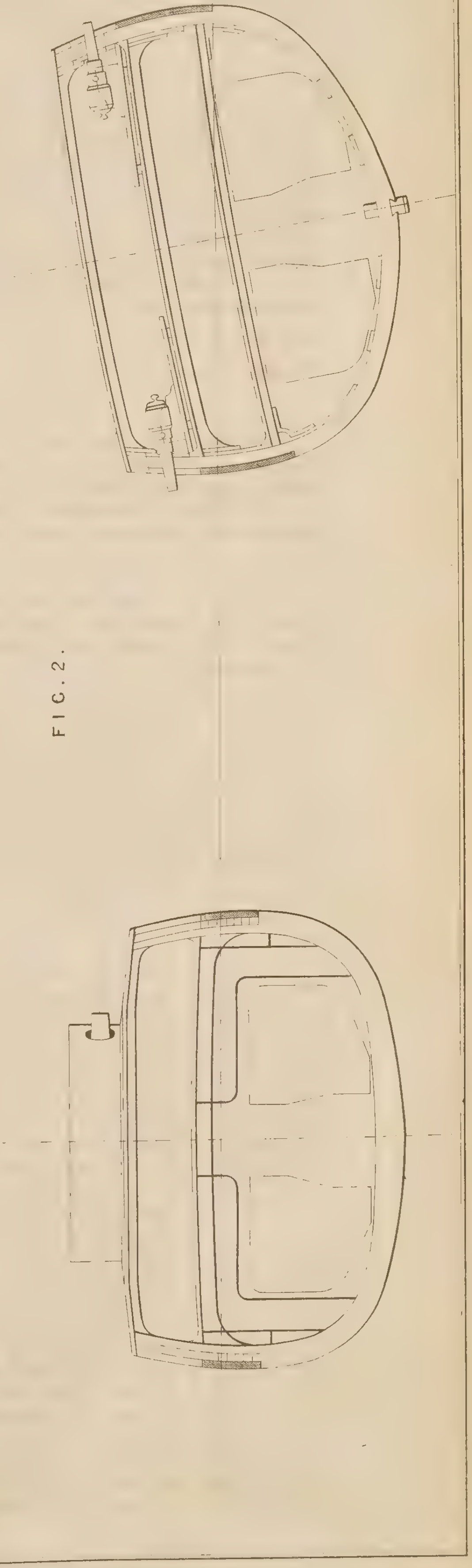

FIG. 2.

chance for a 600-pounder shell, from the two guns in the turret ship, hitting and penetrating the weaker top of the *Pallas*'s box, than one 100-pounder shell from the two broadside guns of the *Pallas* could have of hitting and penetrating the stronger and higher, but much smaller, top of the turret; and if in either ship such a thing did occur, the 600-pounder shell would have six times the demoralising effect, among the 60 men, in the crowded box of the *Pallas,* than the 100-pounder shell would have among 20 men inside the turret.

[*Objection* 1, *b.*]—" The probability of a shot or shell from a 12-ton gun penetrating the " turret, or entering through the armour-plating of the ship's side, disabling the guns and " damaging the turning machinery of the turret."

[*Answer.*]—In engaging the *Pallas,* such a probability could not occur, as she is to carry nothing larger than 6¼-ton guns. To this I must beg to call particular attention, for the extreme lightness of her armament, in proportion to her tonnage, attracted my notice; and, thinking there might be some mistake in the armament given me, before deciding on the defensive and offensive powers of the turret-ship to cope with her, I asked the question expressly by letter of 4th January 1865, and received the following answer from the Admiralty:

" The armament is that stated in the list of weights furnished by the Controller's De- " partment, viz.,—

" 4 - - - - - - 6¼-ton guns.
2 - - - - - - 110-pounders.

6 guns."

It will therefore be evident that, at the closest quarters, the *Pallas,* with her intended armament, would not penetrate the turret-ship's side, it being 6-inch, with 10 inches backing, and 1½-inch skin, supported by 10-inch iron frames, the same as those of the *Bellerophon,* whilst the turret-ship, even if she had only 6½-ton guns, could penetrate the sides of the *Pallas* with impunity, and with her 20-ton guns could do so at any range that it would be practicable to engage at sea; for the *Pallas*'s thickest armour is only 4½-inch, on a wooden frame of 22 inches, without any inner skin or iron frames. But since the turret would have, as in *Royal Sovereign,* two distinct sets of gear, either of which can be used in case of one getting out of order, besides there being free access from the lower deck to the platforms and rollers on which the turret revolves, without exposure to fire, numerous appliances for working them can be employed, such as tackles, handspikes, shipped and manned like capstan bars, or an endless chain, or hawser, &c. However, as it seems to be assumed, in more than one instance in the course of evidence, that the *Pallas* would carry 12-ton guns in lieu of the armament of 6¼-ton guns for which she was designed, we will consider her armed with these heavy guns.

In the first place, such a change would double the weight of her guns, and as to penetrate the turret-ship's side at all she must have rifled 300-pounders, her weight of ammunition would be trebled. I will hereafter refer to the greater immersion, reduction in height of port from the water, and loss of speed that would be entailed by this extra weight. Besides, according to the evidence, these 12-ton guns require 20 feet between them when worked in the broadside, but I find that the *Pallas* has only 14 feet from port-sill to port-sill, so she would find her square-box inconveniently crammed with such guns, and the crews necessary to work them. But even supposing that she can carry them; at 1,000 yards my 20-ton guns would easily pass through her light 4½-inch iron sides, whilst the turret-ship's sides, being of the same strength as the *Bellerophon*'s, would be practically invulnerable at that distance to the 12-ton guns, or, at all events, the chances of a shot entering would be reduced to the minimum. Again: in comparing these vessels, if in favour of the *Pallas,* we are to grant that she can carry double the weight of armament and ammunition, which would amount to 42 tons, let the turret-ship have the benefit of an equal increase of weight, when the turret could have double the thickness of armour-plate, which would amount to 25 additional tons, leaving 17 tons to be used in protecting the ship's sides. It must also be remembered that, in attempting to work even 12-ton guns on the broadside, machinery is required, which, with gun and carriage, would be much more exposed than in the turret, the advantage of which is described by the Committee (*b*), page 6, in the following terms:

" There is better protection for the men firing the gun, who are actually inside the " armour-plated part of the turret, and also for the gun and carriage, in the turret system " than in the broadside."

It may be thought that the two guns on each side in the *Pallas* box, being further apart, would not be so liable to be injured by shot or shell; but one 600-pounder shell, entering a square box 39 feet by 48 feet, filled with men, would, I believe, effectually deprive the *Pallas* of her offensive powers.

[*Objection* 1, *c.*]—" When the turret-ship is heeling towards the enemy, a shot passing " through the upper deck, between the glacis plate of the turret and the ship's side, would " damage or disable the turning machinery."

[*Answer.*]—The chances of catching the ship at the exact moment of roll, when both ships are rolling equally, are so remote, and I consider it so improbable, if not so impossible, that it is a contingency hardly to be considered; but even then, it must be remembered that the weakest part of the upper deck of the turret-box has more than double the protection of the *Pallas*'s deck, the former having 1-inch iron against ⅜-iron on the latter, besides the chance of hitting the *Pallas*'s deck over her square box is very much greater than the turret-ship's, exposing, as the former does, an area of 1,872 square feet, whilst but 553 square feet of the turret-ship's deck round her turret would be exposed, for it must be remembered that both the turret and pilot-house, standing above the deck, act as traverses and protection to that portion of the deck on the off side, leaving but a small surface exposed compared with the square box. With reference to disabling the turning machinery, if such a thing should happen, it would be of little importance, as I am in no way dependent upon the cog-wheels for revolving, for I have various means of doing so, as explained in answer to *b.*

[*Objection* 1, *d.*]—" A heavy shot, striking the ship's side abreast of the turret, even " without penetrating, would be liable, by the great concussion, to send fragments of wood " or iron into the lower part of the turret or its machinery, and temporarily prevent its " working."

[*Answer.*]—The rollers of the turret being open to view, and working on a raised roller path, any splinters of wood or iron could be readily removed, more readily than anything which got under the truck of a broadside gun or slide. However, it must be remembered, when employing heavy guns on the broadside, that they must also have machinery, which, being closer to the ship's side and to an open port, would be much more liable to injury * than the turret machinery in the centre of the ship, protected by a side without port-hole or other opening. But it is easy still further to protect the rollers, &c. by fitting a 1 or 2-inch iron curtain round the bottom of the turret. For my part, the chances of any inconvenience being experienced from this cause appear so very improbable, that I prefer to leave the works open to view. Even if several of the large massive rollers were struck and broken by a shot, the revolution of the turret would not be materially affected; besides, these rollers can be removed as easily as the truck or roller of a gun on the broadside could be shifted. Before concluding my answer to this first objection, containing four different paragraphs, *a, b, c, d,* I would again observe that all ships' guns and carriages must be more or less liable to the foregoing contingencies, leaving it a mere question which of these two vessels on rival principles is the most so; and I am sure I shall be pardoned for here calling attention to the opinions of our new constructor of the navy on the central armament system before he came into office. In the " Engineer," of August the 2d, 1861, he writes:

" On reference to Fig. 1 (a section of *Trusty* with turret and broadside gun) the reader " will observe that while the height of the original port of the *Trusty* is less than 4 feet, the " height of the shield-port is more than 11 feet, that of the plated side of the ship being " 8 feet 9 inches. These figures illustrate another vitally important advantage of this " system of construction. Everybody knows that a ship with ports only 4 feet from the " water would be incapable of using her guns in any but the smoothest waters, and that the " *Trusty* could not, in fact, put to sea at all without first securely closing all her ports, and " this notwithstanding that she has to sustain a weight of plating, extending to a height of " 9 feet above the water. With the additional weight of the shield plating only, Captain " Coles secures a port of no less than 11 feet in height, sufficient for the gun-ports of the " very largest war ships ever yet constructed. At the same time the entire side of his " ship, 9 feet high from stem to stern, may be made of one solid unbroken mass of framing " and plating, perfectly proof to shot and shell; whereas the side of every iron-plated frigate " yet built is impaired by the presence of numerous large port holes, every one of which, " not only weakens the structure of the side, but at the same time gives ready entrance to " the enemy's shot and shell upon the fighting deck, where a single shell spreads panic and " confusion. Nor are all these advantages gained at the expense of that 'range of vision' " for the gunners, upon which Captain Halstead insisted so strongly in his recent lectures; " on the contrary, it is a part of the shield system to provide at the top of the shield a place " for the gunner whose duty it may be to bring the enemy on, from which he may get as " wide a view as he pleases; the nice adjustment of the training being obtained by means of " a sight aperture above the gun, the port through which the gun protrudes affording only " the necessary play for the elevation and depression of the piece. Moreover, the great " elevation of the ports in the shield system is attended by another advantageous change, " viz., their transfer from the sides to near the centre of the ship. This may be well illus" trated by such a diagram as we have shown at Figs. 2 and 3. Fig. 2 shows a shield-ship " inclined at a sufficient angle to bring her gunwale to the water, and yet carrying her " gun and port many feet above it. Fig. 3 shows a much loftier and larger ship of the " ordinary construction inclined at the same angle, and yet burying her leeward ports and " guns in the sea.

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* The area of a broadside port to work a 600-pounder admitting of 18 degrees elevation, and 30 degrees training would have an open or outer area 18 square feet, but the inside area or true area of weakness from the necessity of bevilling the port away to give the required training, would be 43 square feet.

"It cannot be necessary to add a word by way of enforcing the lesson taught by this "illustration. It should be remarked, however, that the same causes which tend to disable the guns in Fig. 3 (the broadside-ship) while those in Fig. 2 (the turret-ship) "remain perfectly fit for action, tend also, in a less degree, to give the latter superior "steadiness when the two ships are rolling through less angles of inclination under ordinary "circumstances. The less a gun is moved about the more accurate is its practice, of "course; and it is easy to see that the gun in Fig. 2 (turret-ship) is moved through very "much smaller spaces than that in Fig. 3 (broadside-ship).

"This is an advantage not to be slighted in these days, when such costly efforts are "made to improve our artillery practice both by land and sea.

"It may also be mentioned, in this connection, that according to the views of many "naval officers of distinction, the tendency of the ship to roll at all would be greatly reduced by the transfer of a large portion of the armour and the whole of the armament "to the centre of the ship. We are unwilling to lend this opinion our sanction in the "present state of our scientific knowledge on this subject; but it is at least certain "that the racking strain put upon the fabric of the ship would be reduced by the "arrangement.

"Although the proposed experiments with the *Trusty* will not prove much with respect "to considerations of this kind, it is highly probable that, with that vessel before their eyes, "our Admiralty authorities will be more than ever impressed with the more striking "advantages of the shield system."

These views, expressed by Mr. Reed in 1861, have since been fully verified by the experiments in the *Trusty*, in the *Hazard*, *Royal Sovereign*, *Rolfe Krake*, and other turret-ships;* but, with reference to the chances of damage to the fighting powers, so well described by that gentleman in the "Engineer," as being protected in the turret-ship, "by one solid and unbroken mass of framing and plating, whereas the side of every iron-"plated frigate yet built is impaired by the presence of numerous large port-holes, every "one of which not only weakens the structure of the side, but at the same time gives "ready entrance to the enemy's shot and shell upon the fighting deck, where a single "shell spreads panic and confusion," it will be found that the *Pallas* square box, 48 feet by 39 feet, although containing only four guns, is perforated with 12 large holes, eight of them being ports, and four doors, to admit of exit and egress. The reason why four guns should require eight ports is, that these extra ports, two forward and two aft, in the square box, were to endeavour to accomplish, by shifting the guns from one port to another, what the turret does by a mere lateral motion of the turret on the turntable. I say endeavour, because even then the square box of the *Pallas*, according to Mr. Reed's own showing, (Question 1,013), could only cover 240 degrees of the entire circle with her guns, whereas even this *one* turret-ship could cover 328. But this is not all, for to follow a moving object from the square box, when lost sight of from one port, it would be necessary first to run the gun in, then to shift the pivot, and then to run it out again, then to get the object on, if it could be seen at all; for, during these operations, it may have passed further on, or back again, whilst the turret's guns can always be kept *run out*, and bearing on the object, having the power to revolve quicker than any vessel can pass, or than the vessel's movements could be influenced by the helm. This is an advantage that is only to be obtained by the turn-table of the turret system, and is thus spoken of by the Committee:

[*Advantage* 5, *g* (p. 6 of Report).]—"When a ship has to go through an intricate "channel, or up a winding river, where the enemy is always in range, the turret system "would give a greater facility to a one-turret ship probably, and a two-turret-ship certainly, of keeping her guns bearing on the enemy, while the ship would be following "the course of the channel or stream."

But we must not lose sight of the point more particularly in question. Let us see what is the area of open ports in the *Pallas* for "the ready entrance of shot and shell"; not that it would make any difference to the one-turret-ship, if engaging the *Pallas*, for her 600-pounders would pass through the *Pallas*'s sides as easily as through the open ports, only carrying a few more splinters with them.

	Feet.
Area of *Pallas*, eight ports in her box - - - -	68·4
four doors - ditto - - - -	60·0
Total Area - - -	128·4
Against the turret's two ports - - - -	18 square feet,

which can be turned away from the enemy whilst the guns are in and loading, thus reducing the chances of casualties to the minimum, as proved by the American monitors so continuously under fire.

[*Objection* 2.]—"The possibility of the ship being boarded, and the turret jammed by "wedges."

[*Answer.*]—The possibility of being boarded, so long as the ship remains in possession of her moving powers, depends upon whether the captain thinks it advisable to allow such a contingency to occur. The turret-ship, when engaging such a vessel as the *Pallas*, or others on the square-box principles, from having a perfect range of vision from the pilot-house, can by a turn of the helm or screw prevent a vessel from closing (boarding entails the necessity of the vessels touching). The *Pallas* has no pilot-house or protected place for the captain and pilot to take the ship into action; and I do not see how, when under a heavy fire of musketry and great guns, she can be efficiently manœuvred in action; for if the captain or pilot stand on the top of the square box they would be picked off instantaneously by riflemen. It may be said, a pilot-house could be placed in her such as I have fitted in the *Royal Sovereign*, and propose for turret-ships in general; but that would add 30 tons to the weight of the already over-loaded *Pallas*. I look upon the pilot-house and steering apparatus, irrespective of the gun-turret, as one of the most important features in my turret-ships, and hope all our ironclads will have some such means by which they may be taken into action; for a vessel, however powerful her armament may be, unless so provided, can only be compared to a warrior armed with a Whitworth rifle, but having no eyes.* Suppose that the *Pallas*, with her square box, does get alongside of the turret-ship, I have my reserve boarders on the off side of the turret, funnel, boats, &c., and behind the bulwarks aft, extending 48 feet from the stern; also behind the small top-gallant forecastle. If boarded, I should first discharge my guns in the direction of the enemy's boarding party, blowing them overboard, when my reserve boarders from behind the turret would rush out, and complete the confusion to the enemy. I believe the great facility which these turret-ships present for repelling boarders will be one of their strongest recommendations; for, even supposing the enemy did get possession of the upper deck for a time, I am no worse off than an ordinary ship would be if boarded, and the upper deck carried; but so long as my turret is not captured, I have, as it were, a double-barrelled revolver sweeping my deck, when, to use the Committee's own words in Objection No. 16, " the impossibility of men remaining on that part of the deck near which the guns are " being fired " would render the chances of boarding very precarious.

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* Since writing this the *Scorpion* has been out in heavy weather and is spoken well of.

We must now turn the tables, and suppose the *Pallas* boarded; she can put no men on the top of her square box, for they would be totally exposed to musketry from the enemy, whilst a few men jumping on the top would have entire command of the upper deck, and there is not a gun or a loophole that can be taken advantage of to drive them off. With reference to wedging the shield, it is more difficult than may be supposed; it is necessary first to get command of the deck, then to remove a half-inch plate that covers the aperture around the turret, and then to drive a wedge in. The people inside and on the top of the turret and pilot-house would not be asleep, and surely either would shoot or cut a man down before he completed such an undertaking; even if a wedge were driven from above, men on the lower deck protected could easily drive it out from below. The opening between the deck and turret should not be less than four inches, and such an opening would require a good-sized wedge.

During the whole of the late civil war in America, no monitor was ever boarded by the enemy, although several ordinary steamers were so captured. In the engagement between the *Monitor* and *Merrimac*, though several hours almost side by side, no attempt at boarding was made.

[*Objection* 3.]—" Taking into consideration the great weight of the turret and guns, it " has also been suggested as being questionable whether the turret would be secure in a " very heavy sea-way, when the ship was lurching heavily, from the violent jerking strain " that would be thrown on the iron collar, round which the turret revolves, and which is " the only security to prevent the turret fetching way."

[*Answer.*]—I notice that this objection is not alluded to in the Committee's final Report, so I imagine they subsequently became acquainted with the means fitted in the *Royal Sovereign* for securing the turret in a gale of wind, by four wedges or screws at the junction of upper deck, taking their due share of strain and relieving the pivot. However, I do not consider this as a necessity, but merely as a prevention; there can be no jerking strain as there is no play in the pivot. The only jerk could be from a gun fetching way in a turret, which, with the powers of control I have from my winches, I consider to be an impossibility. The pivot is equal to about 2,000 tons strain; and, comparing it with the bitts of a line-of-battle ship, to which the cable is secured and holds her in a gale of wind, I believe it to be more than sufficiently strong; but if fancied or found necessary, it can easily be made still stronger.

[*Objection* 4.]—" The small amount of depression that can be given to the guns, parti- " cularly when trained forward or aft."

[*Answer.*]—The amount of depression depends upon two things, viz., the height of gun above the deck and the slope of the deck, which can be easily arranged, so as to give the ordinary, or even more depression than is usual in broadside ports. The design in question admits of 7 degrees depression right abeam, 6 degrees at 30 degrees training, and 5 degrees

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* Since writing this I have seen the French pilot-houses, which are similar to mine, but larger. It is questionable whether this is an advantage, as one French officer remarked, the large pilot-house has more chances of being hit, and is weaker.

FIG. 1.

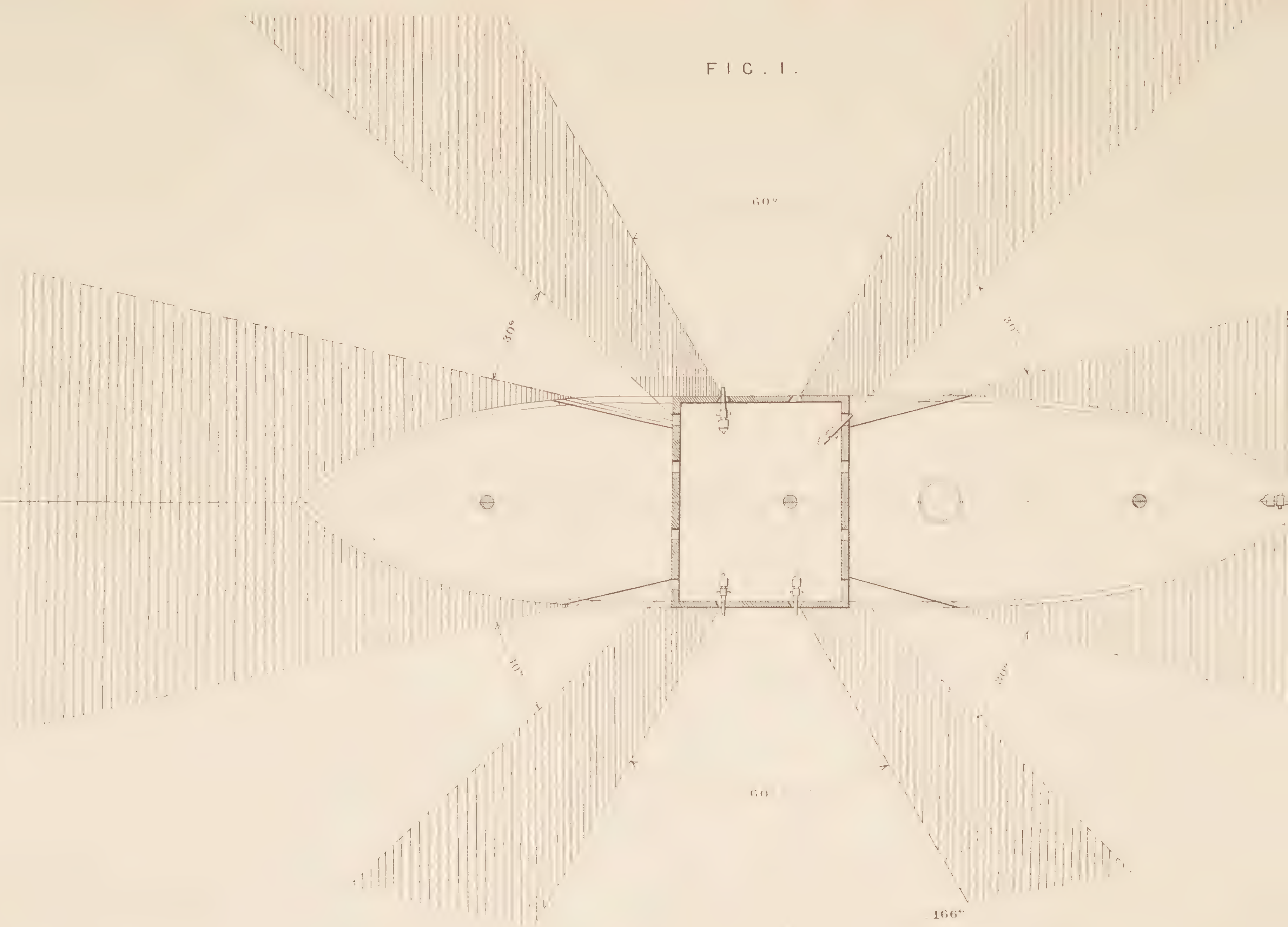
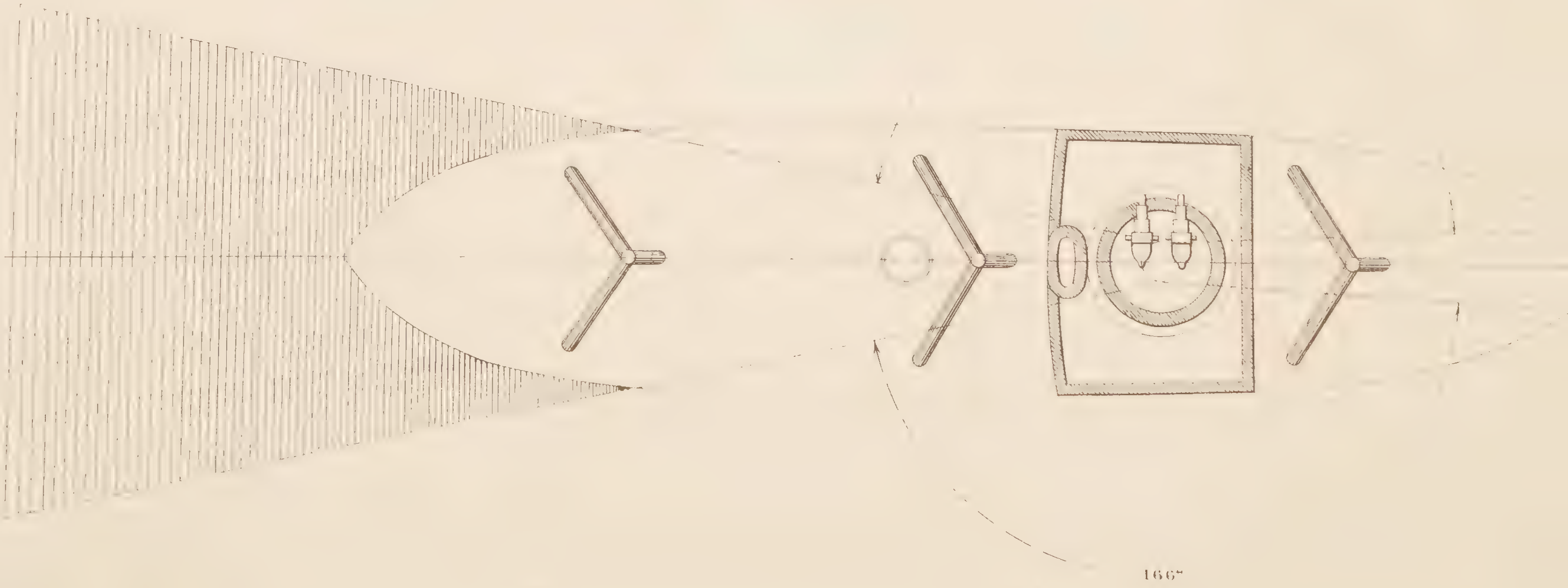

60°
30°
30°
30°
30°
60°
166°

FIG. 3.



DEAD ANGLES OF TRAINING ▥

PLATE II.

FIG. 2.

PALLAS.

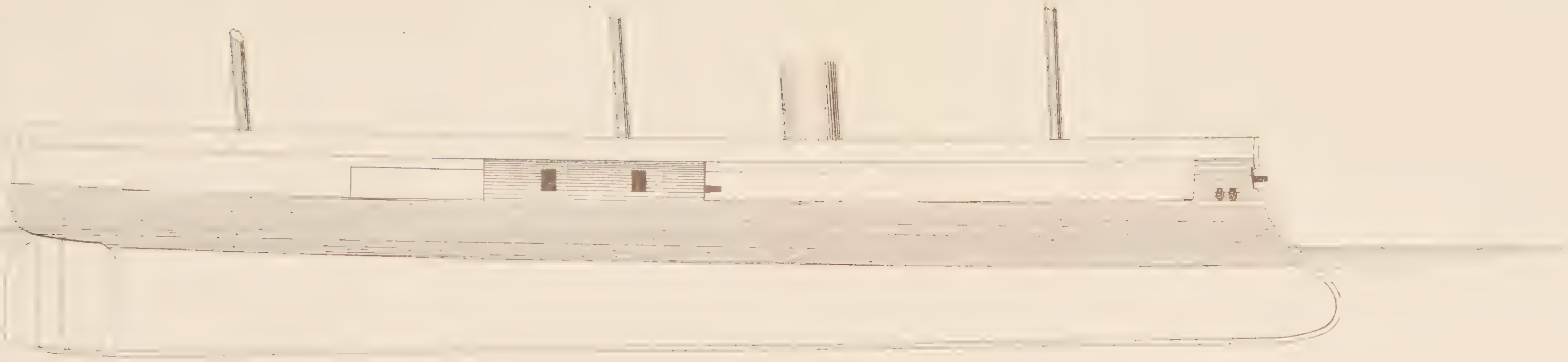
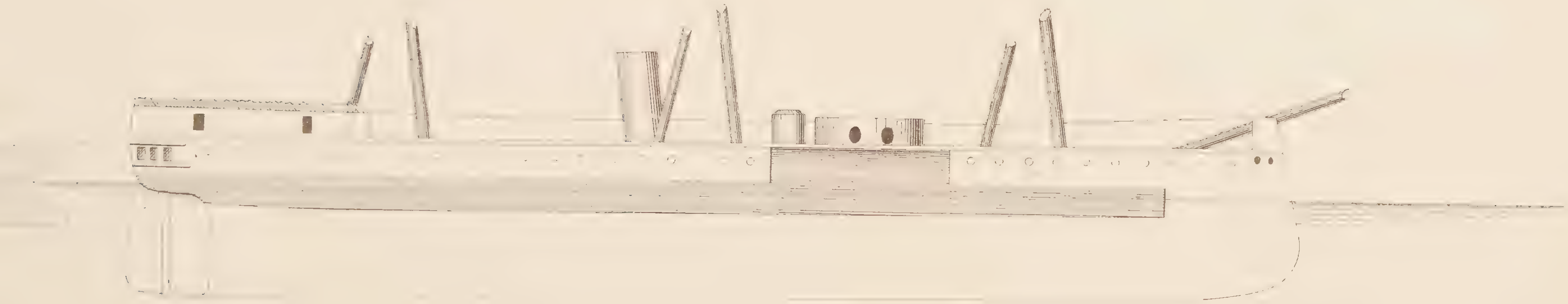


FIG. 4.

ONE TURRET SEA-GOING SHIP.



ARMOUR PLATING ▤

5 degrees at 45 degrees training, forward and aft; therefore it is quite equal to the depression that ordinarily can be given on the broadside principle. I am not aware that the 12-ton gun could depress any more out of a square box than out of a turret, for when pointing forward or aft it has a certain amount of deck to fire over; and it has yet to be proved whether 12-ton guns can be shifted in action, or when the ship is in motion, from broadside to fore-and-aft ports, as proposed in square boxes; at all events, it would be a long and uncertain process, during which time the services of the gun would be lost.

[*Objection* 5.]—" The greatest power of training the guns aft is limited to an angle of " 14 degrees from the fore-and-aft line, and at that angle only one gun can be used. The " other gun can only be fixed at an angle of about 33 degrees from the fore-and-aft line. " In training forward, only one gun can be fired at 2 degrees of the fore-and-aft line, the " other gun at an angle of about 13 degrees."

[*Answer.*]—The limits of training are given correctly, but they are very much more than that of the *Pallas*, embracing an arc of 131 degrees for two guns, 166 degrees for one gun, against the *Pallas* 60 degrees for two guns, and 100 degrees for one gun. Thus the *Pallas* would have a dead point of 100 degrees, on which no gun could bear, whilst the turret would only have a dead point, on which no gun could bear, of 32 degrees (*see* Plate II. Fig. 1). Captain Hornby, in evidence on this point (question 728), says: " Judging from what I have seen of the *Enterprise* and *Research*, I should say the " bow guns will only train from about 15 degrees through an angle of 10 or 12 degrees; " but then there is a large dead angle before she can bring a broadside gun to bear. To " show how large this angle is, I would state an experiment that I saw Admiral Dacres " try. He went to inspect both ships at different times; they were lying within two " cables of the *Frederick William*, 90-gun ship. He said to the captain, ' Point at the " *Frederick William*,' the guns being in the broadside ports; he could not bring a gun to " bear. The admiral said, ' Shift the gun;' he could not bring the gun to bear.

" Question 729. Not when it was shifted?—No; the *Frederick William*, 90-gun ship, " lying within two cables, broadside on, could not be touched. I believe the dead angle " was nearly 34 degrees.

" Question 730. Then you think there must have been an arc of nearly 30 degrees, " through which no gun could point?—Yes, more; 34 degrees."

However, it may be said from the drawings it would appear that the *Pallas* could bring a gun right ahead, whilst the turret can only bring her guns alternately within two degrees of the line of keel. But we must consider what sacrifice the *Pallas* makes to do this, and to what extent she would be able to use this gun, placed in the eyes of her when in chase, and steaming against a moderate head sea. The gun is 9 feet out of water; and we know now, from her first trial trips, when she was flying light with no guns in her, drawing 20 feet 3 inches aft, and 15 feet 3 inches forward, she realised a speed of only 12½ knots, in lieu of her estimated speed of 14 knots. She then threw a wave up 7 feet high on her bow. What would be the fate of that gun when steaming against a head-sea in chase of an enemy, when brought down 4 feet more in the water? Why, you would have both to take your aim and fire through water; for assuredly, when she is down to her load draught the wave would come over the port, particularly when a heavy gun is shifted forward to fire out of this bow port, as it will bring her more down by the head, increasing her tendency to pitch, and throwing still higher the wave against which the engines would always be struggling to force her. I will leave it for shipbuilders to deal with the cause of this wave and loss of speed, and will content myself with having shown how utterly useless this much-talked of " right-ahead" bow gun would be. The *Royal Sovereign* and *Prince Albert* can fire right ahead, and the proposed sea-going ship at present could fire within two degrees of line of keel at point blank, and right ahead with elevation.

[*Objection* 6.]—" The interruptions to the training of the guns by the legs of the tripod " masts, and the chances of the legs of the masts being shot away by the fire of the ship's " own guns."

[*Answer.*]—The training of the guns in the one-turret ship have no interruptions up to 45 degrees training forward, and 53 degrees aft, which is more than any broadside port can give; and when training beyond this, there is no point on which a ship could not be covered up to 88 degrees forward and 78 degrees aft. With reference to the legs of the tripod masts being shot away, that could only occur from the grossest neglect, and could equally be done from a square box as a turret, where the rigging, masts, and sides could be shot away. The Committee on this say, page 13, paragraph 10, " We see no disad" vantage in the proposed rig in action. It has the advantage of enabling the yards to be " braced fore and aft when requisite, giving more range to the training of the guns; and, " if proper precautions be taken before going into action, the masts would be more secure " than those on the ordinary plan. If the legs of the tripods are to be rigidly fixed at " both ends, we have doubts whether they will stand the working of the ship in heavy " weather without some appliance to meet the effects of expansion and contraction; but " this can only be decided by actual trial at sea. Moreover, if one leg of the tripod has " the same strength as ordinary rigging on one side would have, the mast would receive " double the support on the tripod system, one leg giving support by resistance to com" pression, and the other holding by tension; and should either leg be shot away in action,

" the mast would be comparatively safe to what would be the case in a ship with her " weather-rigging shot away."

[*Objection* 7.]—" The great length of deck fired over when firing forward or aft, especially when firing rifled shot, which it is supposed would injure the deck."

[*Answer.*]—Experience of nearly 1,000 rounds fired in the *Royal Sovereign* has proved that all apprehensions of damage on this point were illusory.

[*Objection* 8.]—" The difficulty of securing hatches or openings in the deck, which " would be in the way of the line of fire."

[*Answer.*]—In the design of the turret sea-going ship, no hatches are fired over, and in the *Royal Sovereign* no difficulty has been found in securing them.

[*Objection* 9.]—" The fact that the captain of the turret, on whom rests the whole " responsibility of directing the fire, is the only man exposed to rifle-fire from the " enemy."

[*Answer.*]—By placing a description of cowl or helmet on the top of the turret, the captain of the turret would be quite protected from rifle-fire. The statement that he is the only man exposed to rifle-fire says much for the turret, as in the *Pallas* or broadside ships any of the gun's crew standing in rear of the open port are liable to be picked off, not only through their own immediate port, but through the many by which the box is perforated.

[*Objection* 10.]—" There is great doubt whether a turret of the proportions given " would afford sufficient room to fight efficiently two 600-pounder guns of about 22 tons " each."

[*Answer.*]—There has been some misconception on this point, for the proposed turret for the 600-pounders has an external diameter of 25 ft. 4 in., the *Royal Sovereign's* for two 300-pounders having 23 feet, being a difference of 2 ft. 4 in., and not 1 ft. 10 in., as erroneously stated in evidence; this will give ample space for two 600-pounders to be well worked. The difference in square feet of the exterior would be—

Area of inside of turret for two 600-pounders - - 355 square feet;
Ditto - - - - - - - 300-pounders - - 284 ,,

being an increase of 71 square feet inside, which would be ample, as no more men are required inside the turret for 600-pounders than for 300-pounders, the guns being run in and out by winches, and the shot whipped up from outside the turret on the lower deck. The Committee speak of arming a vessel with two turrets, each carrying one 22-ton gun; but let me say, I strongly advocate in all cases that turrets should carry two guns of the heaviest calibre, the extra weight being little in proportion to the increase of offensive powers.

[*Objection* 11.]—" The apparent necessity of loading both guns simultaneously, and the " great difficulty and length of time required to load such heavy guns as 600-pounders in " a sea-way; the risk of carrying and working such heavy guns in a sea-way; and the " slowness of fire as compared with guns of half the weight."

[*Answer.*]—There is not the slightest necessity for loading both guns simultaneously. In the *Royal Sovereign*, under Captain Osborn's command, the guns were worked quite independently of each other. The doubt has arisen in consequence of men unaccustomed to the *double* turret being put in to work it during the visit of the Admiralty to the *Royal Sovereign* in March 1855.

The *Royal Sovereign's* crew was broken up last year, when the ship was paid off. She has never since had her full complement of officers and men, and when going out on these trials, men totally unaccustomed to the turrets have been sent on board but a short time before. I take this opportunity of pointing out that it is neither fair to the officers in charge, or the invention, or to me, and think it is almost miraculous that these heavy 12-ton guns should have been worked and knocked about as they have been, firing nearly 1,000 rounds under the most disadvantageous circumstances, and that yet not a single accident has occurred with guns in turrets.

If " the apparent necessity for loading both the guns simultaneously " arises from fear of concussion, it did not exist in the *Royal Sovereign* during the time Captain Osborn commanded that ship; if, on the other hand, it is from fear of the cartridge being ignited while loading, by sparks from the other gun when fired, it is a question about which no doubt should be left, and should be at once set at rest, by hanging a small charge of powder up at the muzzle of the gun run in whilst firing a hundred rounds or so from the other gun under all circumstances; at present it will suffice to bear in mind that the sparks vomited from the gun must actually fly back a distance of 12 ft. 6 in. to reach the muzzle of the gun loading.

In the *Hazard's* cupola, fitted with two 110-pounder Armstrongs, and tried under Captain Hewlett, not the slightest inconvenience was found by working and loading the guns independently of each other, so I consider this precaution totally unnecessary. But fitting a vertical flash-plate outside the turret between the muzzles of the guns would dispel any such fear from the most timid novice. With reference to carrying and working such guns in a sea-way, the 600-pounders with the appliance of the winch I propose, will be as readily under control as we have already found the 300-pounder on board the *Royal Sovereign*; and as far as time goes, I believe there will be only a few seconds, if any, lost in loading with the apparatus which I can apply to the 600-pounder. The risk, if any, of carrying and working these heavy guns in turrets must be far less than in the broadsides.*

[*Objection* 12.]—" If the sights are to be fitted as those of the *Royal Sovereign*, " the plan is much the same as the old system of firing guns by Moorsom's Director, which " is not applicable to all circumstances. As the captain of the turret has to pass the word " to No. 2 inside the turret, as to what elevation it will be necessary to give the gun with " reference to the heel or roll of the ship, and as No. 2 has then to make a calculation, " adding to or subtracting that elevation from the elevation due to the distance of the " object, there is no doubt that at sea, under the ordinary circumstances of a naval action, " this will be very liable to delay and error."

[*Answer.*]—With respect to delay and error being caused by the novel mode of fitting the sights on the top of the turrets in lieu of one on the guns, in the *Trusty*, in the *Hazard*, and in the *Royal Sovereign*, they have been used; and I would remark, that experience and the evidence shows they have hitherto answered most admirably. Besides the superior range of vision, the great distances between the dispart and tangent sight give such an advantage for taking aim in a naval action, that I think it quite compensates for a little head-work that may be necessary to ensure the elevation of the gun being correct. Commander Singer invented a very clever sight, that even did away with this objection. I wish he had been examined on it; and I now would beg to call their Lordships' attention to his sights; two were applied for to be fitted to the *Royal Sovereign*, but I have heard nothing of them since.

The Committee, in their report, observe:—" So far as being able to keep the gun, when " loaded, always pointed towards the object, a greater rapidity of fire is obtained by the " turret system, the captain of the turret having at all times a distinct view of his object, " which in a sea-way would be frequently lost sight of by the captain of a broadside gun; " and further, the object is less liable to be intercepted by smoke."

This is an important advantage that cannot be too much dwelt upon, for it is admitted by all practical men that the ports in our broadside ironclads, which have been reduced to decrease one great evil (that of the men being picked off through the portholes), have increased a still graver one, by so reducing the port, that, when the gun is run out, the port is so nearly filled up that it would be impossible to see or take aim at a moving enemy, particularly when this difficulty is exaggerated by the smoke of an action. The advantage of the turret's clear range of vision and aim on such occasions cannot be too highly estimated, and would quite outweigh any objections to the minor details of fitting the sights on the turret. Captain Sherard Osborn, in his report, says, paragraph 9, " To " recapitulate, I am of opinion that the *Royal Sovereign*, as she now stands, is the most " formidable vessel of war I have ever been on board of; she would easily destroy, if her " guns were rifled, any one of our present ironclads, whether of the *Warrior*, *Hector*, or " *Research* class. Her handiness, speed, weight of broadside, and the small target she " offers, increases tenfold her powers of assault and retreat; and I believe I see my way " to firing by night from a turret with as much accuracy as by day, so long as the enemy " is visible."

[*Objection* 13.]—" The sights on the turret by which the gun is fired, however accu- " rately fitted at first, are liable, after a time, to become untrue by wear, &c. of the slide " and fittings."

[*Answer.*]—Sights on all guns require to be constantly looked at and readjusted. The sights on a turret merely require ordinary attention and care, when they can always be quickly adjusted by means of a batten. The *Royal Sovereign* having fired 1,000 rounds without deranging the sights is sufficient proof on this point.

[*Objection* 14.]—" If the number of men for working the guns is to be in the same pro- " portion as for those in the *Royal Sovereign*, there does not appear to be sufficient space " within the box that encloses the base of the turret to hold the guns' crews."

[*Answer.*]—With my appliances for working the 600-pounder, I require no more men than are now used in the *Royal Sovereign*; that is, seven men to each gun inside the turret, making 14, and 20 men outside the turret to each gun, but within the square box, making 40 men, which is ample for all contingencies; and I think it must then be admitted that the turret-room will be far less crowded than the *Pallas*'s box with four guns, their crews and officers amounting to not less than 60 men.

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* The *Royal Sovereign* has fired at the rate of one round in a minute and fifteen seconds, but from her crew having been broken up, this can be no criterion as to time. With a well-drilled crew, I will guarantee to fire at the rate of one round per minute.

[*Objection* 15.]—" The necessity for the officers and ship's company, not engaged in " working the guns, magazine, and engine, or in steering the ship, and who would " be upwards of 100 in number, having to be placed in the holds for shelter during " action."

[*Answer.*]—I imagine this objection arises from question 983, where Mr. Reed says, " There is no place for " the men and officers in action except the protracted space around the turret." How Mr. Reed could have made this statement I know not, as there is an orlop deck before and abaft the turret-box, protected by the armour-belt, where 200 men could be, with far better protection than on the *Pallas* lower deck, with only a nominal protection of 4½ plates.

[*Objection* 16.]—" If from any circumstances it should be necessary to manœuvre the " ship under sail in action, or to employ men on deck for any work or duty, the total " want of protection for the men employed on deck, and the impossibility of their remaining " on that part of the deck near which the guns are being fired; as also the risk of their " being washed overboard, if the ship should be driven against a head sea when cleared for " action."

[*Answer.*]—The protection that would be afforded to the crew, if necessary to manœuvre the ship under sail in action, would appear at first sight not to be so great as in vessels with the ordinary high bulwarks, and might consequently be thought a disadvantage; but we must first consider under what circumstances it would be necessary to manœuvre under sail in action.

It is evident that no captain would embarrass the manœuvring of his ship with sail so long as his steam power was available. However, I admit that if two broadside ships, with their limited powers of training the guns, were engaged under sail, that the one without the cover of bulwarks for her crew would be under a disadvantage after the ships in action had come to this alternative; but the turret-ship, with the great range of training for her 600-pounders, would not require to manœuvre under sail in the same degree that the *Pallas* would to bring her 100-pounders to bear at all. Therefore I look upon the supposed inconvenience of not being able to manœuvre under sail as of little or no importance to a turret-ship, comparatively with that of a broadside ship; but still it is a circumstance that might occur, and I think it will be seen, that without interfering with the great fighting range of the turret I can manœuvre my ship under sail, giving the men very fair protection, and in some instances much more substantial protection than the splintering bulwarks of the broadside ship would. When working the ropes on deck there is a certain amount of cover that the Committee appear to have overlooked—the men who would work those ropes about the mainmast would be able to take shelter behind the turret and pilot house; those about the foremast, behind the topgallant forecastle; and those about the mizenmast behind the standing bulwarks, six feet high abaft, extending 49 feet from the stern, besides the funnel-casing, boats, booms, &c. amidships. However, I propose, instead of working the ropes on the upper deck, to lead them when in action down below, either through or alongside the hollow masts and legs, so that if it were necessary to manœuvre the ship under sail, the captain of the ship, by means of his voice-tubes, could give the necessary directions to the men below, when the yards could be braced round and the ship manœuvred without a man being visible to the deadly aim of the present arms of precision. For instance, the preventer main braces would be led down forward as is usual in many ships, the lower and topsail braces aft, &c.; and if necessary, on going into action the cabin bulkheads between decks could be triced up, or unshipped, as was done in our old line-of-battle ships, giving a clear deck for working the ropes below. I therefore think it will be admitted that this objection of fighting under sail is not tenable, and had the unfinished model of my tripod masts, which was put before the Committee during my illness, been completed, or had I had the opportunity of explaining it, I am sure no such objection would ever have arisen.

However, supposing such an objection does exist, it is more than compensated for and answered by the the Advantage 5. f. page 6 of the Committee's report, which says:—" If " the ship were totally dismasted and the crew disabled, a one-turret ship would probably, " and a two turret ship certainly, be able to continue the action to greater advantage than " a ship armed on any other plan under the like circumstances."

We must now come to the last paragraph:—" The risk of men being washed overboard " if the ship should be driven against a head sea when cleared for action."

When driving the turret ship against a head sea, I require no men on deck; but even then, I should have the top-gallant forecastle, and the standing bulwarks aft, top of turret, and platform round the funnel; besides ridge ropes which should always be kept rove round the ship through the standing stancheons. Supposing then, two vessels, the *Pallas* and turret ship were cleared for action, and steaming against a head sea, in chase of an enemy. According to the *Pallas's* drawings, she could bring three guns in that direction; that is, one gun pointing on each bow 14 degrees from line of keel, and one in line of keel, or right ahead; whilst the turret ship would bring one gun on each bow, only two degrees from the line of keel. By a slight modification of the cable bitts on deck, she could fire right ahead.

We must now consider the different positions of these guns in the two rival designs. The *Pallas's* bow-gun points out through a bow-port in the centre of the receding stem, and is 9 ft. 6 in. out of water. This vessel has not been tried at her deep load draught, or in a sea way, but if we may judge from the wave that she threw up before her, 7 feet high, when trying in smooth water, I fear she would be obliged, if ever driven against a head sea, to have her port shut, and her gun secured inboard, instead of being "cleared for action," whilst the turret portholes being 12 feet out of water, and 72 feet from the stem, with the top-gallant forcastle and that length of deck to break the sea before coming to the turret, her guns could work and be used with ease.

However, it may be said, the *Pallas* has still two guns that can point on her bow, 104 feet from the stem; but these ports are only 7 ft. 9 in. out of water, they cannot point within 14 degrees of line of keel, and they have a funnel or conductor in the shape of a sponson, to conduct the water into the porthole. To bring these guns on a chase right ahead, would entail a considerable yaw, and if the ship were at full speed, all practical seamen know how difficult it is again to bring a vessel to a small helm, entailing a great loss of speed; besides, when yawing, this port of *Pallas* would be open to a sea striking on the bow and rushing into the port, which would at all events place the fighting powers of the box *hors de combat* until the water was again got rid of, and I fear that these ports, only 7 ft. 9 in. out of water, when forcing the ship against a head sea, instead of being cleared for action, must share the same fate as the bow-port, be also closed, and the gun secured inboard; thus, in fact, rendering the *Pallas* gunless, as far as offensive powers ahead go, whilst her rival could fight with ease, her turret guns 13 feet out of water, and 72 feet from the bow.

Captain Preedy, who has had great experience, in his evidence (question 594) said, "The ports of these iron broadside ships are low, and if you get a gun out, and cannot get it in again, it would be a very serious matter in a sea-way, for you would ship such heavy seas that it would become a very serious matter."

[*Objection* 17.]—"The limited amount of defensive powers of the ship when at anchor, "against sudden attacks from boats, or attempt to carry the ship by boarders."

[*Answer.*]—The words "sudden attack," particularly if by boats, at once suggest to me what would be the tactics of the offensive party; surely it would be to approach the ship from some point where no gun would bear. In the *Pallas* there is a dead angle of 45 degrees on both bows and quarters on which no gun can be brought to bear, and even to reduce her undefended points to this angle, she must shift a gun from one port to another, an undertaking in the case of a "sudden attack," I fear not to be contemplated with heavy guns. However, even then she would have a space on each bow of 72 feet, and on each quarter of 40 feet, that no guns would be brought to bear from, whilst the one turret-ship has only a dead point of two degrees on each bow, and 14 degrees on each quarter, and a two-turret ship would have no dead point of training, so that I cannot admit that her defensive powers would be limited on a sudden attack in comparison with her rival the *Pallas*, or other square box ships; indeed, the superior arc of training her guns without the loss of time inherent upon having to shift from one port to another, I submit, gives the turret system a great superiority when suddenly attacked, for you might bring a turret gun to bear when you could not bring a broadside one. If boarded, the turret ship would be no worse off than other ships, with the extra advantages of the pilot-house and turret for riflemen, assisted by the turret guns, which, if discharged in the direction of the boarders, would surely clear the deck; such, to use the Committee's own words, in Objection No. 16, is "the impossibility of men remaining on that part of the "deck near which the guns are being fired."

[*Objection* 18.]—"The limited power of defence against two or more ships, if the turret-"ship be attacked on both sides; and the exposure of the weak side of the turret to the "fire of one or other of the enemy."

[*Answer.*]—Being attacked by two ships is an exceptional case, but let us suppose that two *Pallases* attack this turret-ship, each bringing, as they would, two 100-pounders to bear against the *Bellerophon* target side of turret-ship; they could do her little or no damage, in proportion to the 600-pounder shot or shell that the turret-ship would put through their frail sides with the greatest ease and certainty. Besides, the *Pallas* must have tolerably smooth water to admit of her ports being kept open and her guns fought; whilst the turret-ship, as stated by the Committee, "would fight her guns longer and more "efficiently in a sea way." This is a fact that must not be lost sight of; but let us see how a one-turret ship would oppose, or rather dispose of, these two *Pallases*, if they swam long enough to come within good battering range. If I were fighting her, I should work the turret guns alternately on each broadside, reloading whilst revolving the turret. For instance, suppose I fired one 600-pounder to starboard, I should immediately revolve, an operation which takes 30 seconds, and fire the other 600-pounder to port; in the meantime the other 600-pounder would be loading, and when ready the turret would be again in position for firing starboard, and so on; so that it must be seen I should only lose 30 seconds on the second gun fired: after which I should be firing one 600-pounder alternately on each side, just as quickly as though the ship was fitted with one 600-pounder in each broadside; and what chance could these two *Pallases*, or box-ships, have against these 600-pounders? Or I could fire both guns simultaneously from each side alternately, representing two 600-pounder guns on each side. Of course a greater time between the discharge of each broadside would elapse; but what could stand a simultaneous shot from two 600-pounders?—When speaking of the turret, I do not know exactly what is meant by the "weaker side." It is plated with 5½ inches of iron all round, with 20 inches backing, 1 inch inner skin, and 10 inch iron frames; against the *Pallas's* 4½ iron, 20 inches backing, with no inner skin or frames; but the front of the turret in the vicinity of the ports has an extra thickness of 4½ iron, making 10 inches iron.

This turret is merely designed to compete with the *Pallas* with her present armament; and I would beg again to mention, that if her armament were increased with proportionable weight, I should increase the strength of this turret by carrying the extra thickness of plating all round; when the turret would always present 10 inches of iron against his antagonist's 4½ inch plates.

[*Objection* 19.]—"It is questionable whether the upper deck is of sufficient height above the water to render the ship a good sea-boat, and afford adequate protection for the health and comfort of the crew, when the ship was making a passage and going against a head-sea, trade wind, monsoon, or strong periodical winds, met with in all parts of the world, and which vessels are liable to encounter when making an ordinary passage."

[*Answer.*]—A memorandum submitted to me from the Admiralty, as far back as 6th March 1863, when I was desired to confer with the Controller's department to design a two turret seagoing ship, directs:—

"The height of the deck from the water line is not to be less than 5 feet, if the ship be 120 feet in length; and an additional foot for every 30 feet additional length."

The one-turret ship in question is 228 feet long, so, according to this order from the Admiralty, and rule laid down, the deck should be 8 feet 7·2 inches out of water, but it is 10 feet at the side, rising considerably in the centre, and the topgallant forecastle is 17 feet 6 inches out of water. Mr. Scott Russell speaks of the vessel as being sufficiently high out of water, and gives a favourable opinion as to her general seagoing qualities and easy rolling. So I am strengthened in my own opinion, that she is quite high enough out of the water, and that she will be a good and comfortable seagoing ship,* and I would further venture to say a much steadier gun platform than the *Pallas*, whose great rise of floor and distribution of her weights, will ever allow her to be.

[*Objection* 20.]—"It is questionable whether the moveable bulwarks will be sufficiently strong to resist the sea under the circumstances above indicated."

[*Objection* 21.]—"The liability of moveable bulwarks to be washed away, or get out of order from constant wear."

[*Answer to* 20 *and* 21.]—The bulwarks of my proposed ship, as also those fitted in the *Royal Sovereign*, are of very great strength, stronger than the ordinary bulwarks of merchant vessels that cross the Atlantic, but, if necessary, the strength can be increased. I would here mention that the bulwarks of the *Prince Albert*, *Scorpion*, and *Wivern*, although on my principle of fall-down bulwarks, are not fitted exactly in accordance with my views; delay will be caused in getting them up and down, and I think they will not last as well as those in the *Royal Sovereign* have done.

[*Objection* 22.]—"The uptake of the boilers is not so well protected against shot as is usual in armour-plated ships of war."

[*Answer.*]—The uptake is protected against horizontal fire by 6-inch iron and 10-inch backing, with 1½-inch skin, and against vertical fire by 1-inch iron; whilst the *Pallas's* uptake is protected by only 4½-inch iron, and no inner skin, against horizontal fire, and by ⅜-inch iron against vertical fire.

It will, therefore, be evident that the *Pallas*, with her 4½-inch iron, has virtually no protection at all to her uptake, comparatively with the turret-ship, against ordnance of the present day. But with reference to its not having the usual protection as in armour-plated ships of war, perhaps it may not when speaking of vessels of 4,000 and 6,000 tons; but the *Pallas's* uptake and Mr. Read's two smaller vessels, the *Enterprise* and *Research*, have far less protection than the turret-ship.

[*Objection* 23.]—"The danger, when the ship is rolling, of a shot passing over the armour-belt, and through the deck into the boilers, or possibly through the ship's bottom on the opposite side. This would be the case if the ship were struck when rolling 10 degrees towards the enemy."

[*Answer.*]—

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* Since writing this the *Royal Sovereign* on her cruise to Cherbourg, has shown that great height is not necessary to make a good sea-boat.

PLATE III.

ONE TURRET SEA-GOING SHIP.

PALLAS.

FIG. 1.

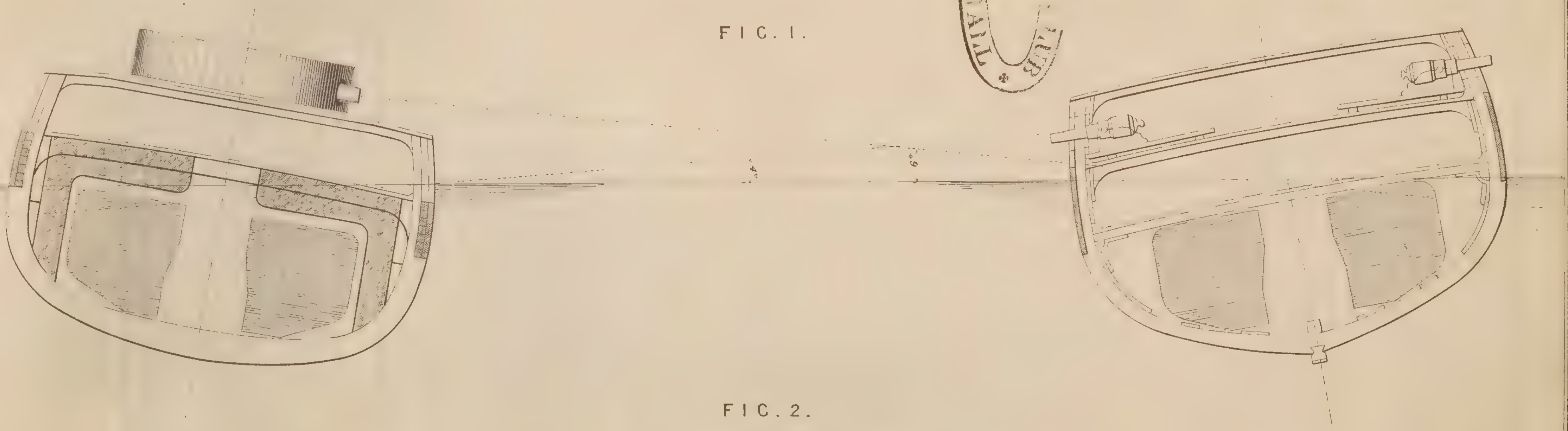
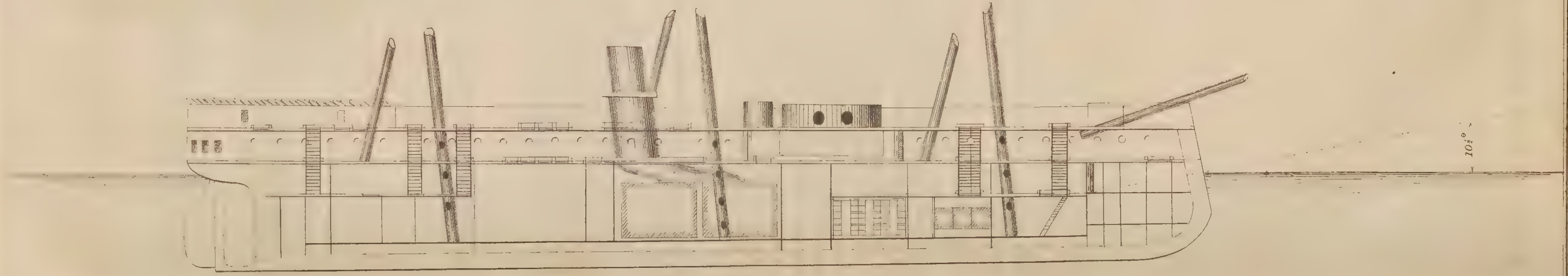


FIG. 2.



[*Answer.*]—Let us first consider the chances of this danger when two ships are rolling 10 degrees.

Admiral George Elliot, in his evidence (see Question 1066), says:—

“ If a ship at close quarters, with guns depressed, took advantage of the roll, it is
“ possible she might penetrate through the upper deck; but I think it a very unlikely
“ thing to occur, if you consider that for a shot to enter from the other ship, the two ships
“ must be rolling the same way at the same moment, and that the amount of depression
“ given to ships' guns is very small.”

This officer has had great experience, and supposing the design in question to be an easy ship at sea, which, according to Mr. Scott Russell's and Mr. Reed's evidence, she would be, we reduce this danger to a very remote chance. But we must compare the chance of damaging the boilers with that of the *Pallas.*

The turret-ship's boilers are protected from horizontal fire with 6-inch × 1½-inch iron, whilst the *Pallas* has only 4½-inch iron. Then it is evident that one of the turret-ship's 600-pounders striking in the vicinity of *Pallas's* boilers, whether in smooth water or waiting the chance of a roll, would pass through *Pallas's* sides, boilers and all, at the water-line, whilst *Pallas* with her 100-pounders could do but little damage to the turret-ship's 6-inch plate × 1½-inch skin.

However, let us assume that the *Pallas* 100-pounder might catch her exactly in the “right place,” when the ship is rolling 10 degrees—(see Plate 3, Fig. 1). Even then, I find a shot would have to pass through a ½-inch iron ship's side, then through a wooden deck and a 1-inch iron plate, which, when struck at an angle of 10 degrees, is equivalent to 5¾-inch plate, and then, after this shot has passed through the ship's side and deck, it must be persuaded to continue its exact course, so as just to touch the top of the boiler on the off-side the ship. Now, considering that, first, the ship has to roll just at the right time for the right place to be exposed,—then the enemy's ship has to be on an even keel, and fire the gun at the exact instant,—then the shot has to pass through the ship's iron side, if it does not strike a rib, and is not deflected, and then to hit the deck at an angle of 10 degrees, and pass through that deck, still without being deflected.

The chances are so remote that I prefer them in a much greater degree than having the *Pallas's* vertical protection of 4½-inch iron, against the turret-ship's 600-pounders, which do not require to wait for a favourable roll, as they would pass through the *Pallas's* sides at all times and in any part.

On again conferring with Mr. Scullard, the naval architect, I find even this remote chance of a shot touching the crown of the boiler on the off-side in the ship when she rolls can be, in a great degree, remedied by lowering the boilers 2 feet 6 inches, and bringing the coal-bunkers over the top of them (see Fig. 1), when the boilers would be 4 feet 6 inches below the water-line, whilst the *Pallas's* are only two feet. By reference to the diagram, it will be seen that the *Pallas* cannot lower her boilers from her great rise of floor, which I imagine is given to her with a view of obtaining great speed, and if that object be not realized, the rise in other respects is a serious objection to an iron-clad; and when rolling 10 degrees the *Pallas's* boilers would be more liable to be struck by a shot passing in over the plating (see diagram), for in the turret-ship the shot, after penetrating the deck and side, would then have to pass through 4 feet of coal.

[*Objection* 24.]—“ The possibility of a shot entering at the water-line or the bow, passing below the foremost thwartship armour-plated bulkhead, and going out through the ship's bottom, which would happen if it struck the ship at an inclination of 10½ degrees. Also, a shot coming in the same direction, and at a small angle above, might pass over this foremost thwartship bulkhead, and rake the deck fore and aft.”

[*Answer.*]—On reference to the sheer drawing (Plate III. Fig. 2), it will be seen that to represent the supposed flight of this shot striking at the water-line, at an angle of 10½ degrees, a line must be subtended from the stem of the vessel to enable the shot to pass just under the belt, and if the belt were extended down to the orlop deck (only 3 inches more), the shot would not pass clear of it: and a shot entering any point between the stem and bulkheads at an angle of 10½ degrees would be arrested by the thwartship belt bulkhead; besides this, the shot would have to pass through the ship's bow at a very great angle, then through numerous bulkheads and the orlop deck.

With reference to the second paragraph of this objection, viz.: “ Also, a shot coming in the same direction, and at a small angle above, might pass over the foremost thwartship bulkhead, and rake the deck fore and aft:”

A shot coming in might rake the unprotected portion of the lower deck, but would be arrested 66 feet from the bow by the thwartship bulkhead of the box; so it must be an oversight saying that it would “ rake fore and aft.”

[*Objection* 25.]—The armour-plating belt not being carried completely round the bow.

[*Answer.*]—This is a mere matter of detail: the plating can easily be carried round the bows if preferred; but my opinions are unshaken as to a light and unprotected cellular bow being the best means by which you can ensure that great desideratum of speed and seaworthiness; this will be found particularly when in chase, and “forcing your ship against a head sea,” as stated in my covering letter with the drawings, and I would beg to call their lordships' particular attention to it.

"This vessel has a belt, which differs from the one proposed by me in 1861, inasmuch as it does not extend the whole length of the ship, but ends 25 feet from the stem, where the plating is run across a thwartship bulkhead; by this arrangement having only to plate a distance of 27 feet, instead of both bows, 28 feet 6 inches + 2 = 57 feet, I obtain a saving of weight, as well as keeping the weight from the extreme of the bow, which will improve her as a sea boat, without diminishing materially her defensive powers."

[*Objection* 26.]—The limited extent of the 6-inch armour plates, which only extend to about 100 feet amidships, tapering to a much less thickness towards the extremities, as also the narrowness of the belt, being only two feet above, and 4 feet below the water line.

[*Answer.*]—The *Pallas* has nothing heavier than 4½-inch plate, therefore the turret-ship has at least a better protection at the water-line for 100 feet than the *Pallas* has at all. With reference to the depth of the belt, it has the same depth under water as the *Pallas* has, viz. 4 feet, which I consider quite sufficient for a vessel of 49 feet beam.

The Committee, in comparing the defensive powers of the two ships, say:—"Taking "into consideration the extra thickness of the iron deck of the turret-ship—estimated at "150 tons weight of 1-inch iron, we assume that the actual weight of defensive plating "in the two ships is about the same; and although there is more surface unprotected in "the turret-ship, still the vital parts of that ship being protected by 6-inch plating, "whilst those of the *Pallas* have only 4½ inches, we think the vital parts of the turret-"ship, her magazines and machinery, are as well protected against shot or shell striking "the ship when not rolling heavily, as the *Pallas*, or an ordinary armour-clad ship having "the same weight of armour, but in 4½-inch plates." But they have omitted one of the most important features of the turret-ship, the 1½-inner skin inside the backing making the weight of her defensive plating greater than that of the *Pallas* by 110 tons; the defensive plating in the turret-ship being 7½-inches, whilst in the *Pallas* it is only 4½ inches; and in the former it being greater at the thinnest part than it is at the thickest in the latter.

The question of armour-plating a ship, or what amount of protection you must give, is to be decided by what guns are to be brought against you; and then it becomes a question whether it is not better to reduce the area of protection, enabling you to put on thicker armour, with a better chance of keeping the shot out than is afforded by the thinner armour on a larger surface. In the case of these two ships meeting, one would fire 600-pounders at 4½-inch iron, with no inner skin, whilst the other would fire 100-pounders against 6-inch plates + 1½-iron skin protecting her vital parts. As the power of ordnance increases, so we must decrease our area of protection, and proportionately increase its strength. To meet these heavy guns, as well as to carry them by my central armament system, I am prepared to show great modifications, to meet all emergencies, against which I do not see that a broadside ship can compete.

[*Objection* 27.]—"Considerable doubt as to the speed of the turret-ship coming up to "the speed given by the Admiralty designer, even to a loss of from half a knot to a knot "and a half."

[*Answer.*]—The opinions given in evidence by the designer, Mr. Scullard, Mr. Lloyd, chief engineer of the navy, Mr. Scott Russell, and Mr. Reed, as well as the Controller: it appears to be generally admitted, except by Mr. Scott Russell, that she would nearly come up to the estimated speed of 13·8 knots. I should not have thought it necessary to enter into the matter of speed; however, since Mr. Reed in his evidence says, "There "is, it appears to me, a disposition on his part (Captain Coles's) to retreat already from "the actual responsibility of this ship if she were built; and a thrusting forward of Mr. "Scullard, who is but the draughtsman of the design, into too great prominence." I feel bound to give my opinion as a practical man on this point, drawn from a comparison between the two rival ships, defining, as I have done in my covering letter of 3d April, 1865, that Mr. Scullard is responsible for the design, and to him every and all credit is due, whether he be called the "draughtsman" who made the design, or the naval architect; for I think if I took to myself the credit of the naval architect's part in this design, I should be taking it unjustly from whom it is due. I must now proceed to compare this ship's speed, as designed—against her rival ship, the *Pallas*—designed by the constructor of the navy, with the enormous staff of constructors and draughtsmen at his disposal. Mr. Reed says, Question 1009:—

"I attach no value whatever to the statements of naval architects, all the time they remain as mere statements; but I should attach great importance to any design produced by a naval architect, and should give it the same careful investigation as that of Captain Coles."

I agree with Mr. Reed when he says he attaches "no value whatever to the statement of naval architects all the time they remain as mere statements;" for Mr. Reed says (946), "*Pallas* was to have nearly 14 knots speed."

Again, Mr. Reed says (Question 978):—

"The reason for the spread of canvass having been kept down in the *Pallas* was, that "she was built primarily for fleetness, and I was averse to giving her a squarer rig than "was absolutely necessary, in order that I should not take off from the superior speed

“ which she was expected to have, by adding to the resistance in the air, in driving her “ upon emergencies. The canvas of the *Pallas* was made subordinate to her steam power, “ in order that the efficiency of the ship in pursuing privateers and other like vessels might “ not be too much interfered with.”

And Admiral Robinson, the Controller, endorses the Constructor's anticipations of the *Pallas*, for he says (Question 811):

“ For instance, we will take the *Pallas*, although I do not think she was ever intended “ to compare, at least in armament, with other ships; she was simply intended to be a “ vessel of extreme speed; there was no other intention in building the ship than to give “ her extreme speed and a good water-line; the armament was quite a secondary consider- “ ation. The *Pallas* has four guns, 100-pounders; she has two of a side, four altogether “ on the broadside, in addition to the bow and stern guns; and there might be many in- “ stances in which the *Pallas* could defend herself better against two, or against three “ ships, than even the turret-ship would do. But if you take the weight of destructive “ power into consideration, the comparison would be more favourable for the turret; of “ course, the *Pallas*'s armament is extremely inferior in weight to that of the proposed “ ship, but its more or less effective distribution is another question.”

But, notwithstanding every sacrifice having been made in this vessel to obtain speed, she only realised 12⅓ knots at her trial, although she was not within 3 or 4 feet of her load draught.

	AFT.			FORWARD.
The immersion at load line would be - -	24	3	and	18 3
On trial trip it was - - - - - -	20	3	and	15 3
	4	0		3 0

I therefore fear that when she has all her weights on board, even with her light armament of 100-pounders, she will fall at least two knots short of her designer's expectations of “ extreme speed.” The Controller, in his report on the turret-ship, estimates her speed at 13·3 knots. Supposing this to be derived from reliable data, we then have the turret-ship with considerably more speed than the *Pallas*. Or, on the other hand, even supposing her to have 1½ knot less speed than estimated by her designer, Mr. Scullard, she still would have a better speed than the *Pallas*, at the same time possessing offensive and defensive powers incomparably greater; and as Mr. Scullard acted under the instructions given to me by the Admiralty to produce “ a ship combining an armanent of the heaviest “ guns with high speed and good sea-going qualities.”

Notwithstanding Mr. Reed's allusion to my fearing responsibility, I now claim for Mr. Scullard, from the evidence before the Committee and the facts which I have adduced, that he has so far solved that problem, whilst the Constructor of the Navy, with all the assistance at his command, and the armament in his vessel being no consideration, has not even obtained a vessel approaching to high speed. Mr. Reed says (1009): “ I think the course “ pursued by the Admiralty the only wise course, namely, to consider actual designs when “ they are submitted, and if they have any doubt in deciding on the desirability, or other- “ wise, of building them, to take, as they have taken, the advice of a committee of naval “ officers, as to the course to be pursued.” I agree with Mr. Reed; but if done in one case, it surely should be done in others. Let me ask, what would have been the fate of the *Research*'s and *Pallas*'s designs if they had been submitted to a committee of naval officers?

[*Objection* 28.]—“ A supposition that, with the same weight of materials, namely, those used in the construction of the hull, the armour-plating, the turret, and guns, and with the same displacement, a more formidable sea-going ship for attack and defence could be designed.”

[*Answer.*]—It would be impossible for me to answer this supposition without knowing upon what data or evidence it was raised in the mind of the Committee, and as in this supposition is involved the whole question as to the merits or demerits of the central armament and broadside question, I think it will be admitted that this alone was sufficient to justify my declining to answer those objections, so long as the evidence was kept from me. I now have the evidence before me, in which I find all the witnesses give the preference to the turret-ship in actual combat; and the only evidence upon which this supposition can be based is the Controller's, who says (Question 1169):

“ Taking the dimensions, displacement, and speed of Captain Coles' design as not to be “ departed from, the ship I should consider as better qualified to go to sea as a cruiser, with “ superior powers of defence and offence for service at sea, would be something like this “ sketch.

“ This is roughly the design that I think would possess greater powers of attack and “ defence, and greater powers for cruising and performing services at sea. The general “ description of the ship would be this: the 6-inch armour-plating goes round the ship at “ a height of about 5 feet above the water-line; she will carry four 12-ton guns in broad- “ side, protected by 6-inch armour-plates, with arrangements for great training on bow “ and quarter, like the *Pallas*; her bow and stern will be defended by armour-plating, and “ she will fight a 12-ton gun in the line of keel forward and aft. The broadside ports "would be 8 feet out of the water, the bow port 10, aft, 8 feet 6 inches; the bulwarks "would be 20 feet out of the water, fixed; she would carry a full power of canvas, on "ordinary masts.

"This ship, in my judgment, as a sea-going fighting ship, is superior to Captain Coles' "design, as it presents fewer points of weakness, and fewer imperfections. I think I need "not recapitulate to this Committee the objections which I have already given to Captain "Coles' design, but I wish to say, that I especially limit my remarks to service at sea, for "I have already told the Committee that, for the defence of harbours, rivers, inland waters, "and for coast defences in fine weather, I consider a modified turret-ship superior to all "others, however much I may object to the particular design of Captain Coles before me. "I also wish to add, that I should not recommend the construction of any sea-going "armour-plated ship of so small dimensions as the design I have put before the Committee. This design is limited by the dimensions and by the displacement that the "Committee have given me. It is not a design that I myself should consider a perfect "design, but being limited in dimensions and in displacement by what I was told by the "Committee, this is the best fighting and cruising ship I could design on those dimensions. I consider the dimensions too small to get a satisfactory iron-plated sea-going "fighting and cruising ship."

In the absence of further particulars, or even the "sketch" alluded to being produced, I must be allowed to doubt that such a vessel can be built; for, to use the Constructor's own words (Question 1009): "I attach no value whatever to the statements of naval "architects all the time they remain as mere statements." The Committee, in speaking of the turret system, admit its greater powers of attack and defence; for they say, page 6, 5. *d*: "A ship armed with two turrets has the advantage of being able to direct all her "guns on the same object on more bearings than by any other known plan; and of throwing "a heavier weight of metal on either broadside than can be done by any armour-plated "vessel of equal size and tonnage armed in any other mode now afloat, or that has yet been "designed, so far as we are aware of."

Since writing this, I find that our noble allies, the French officers, are in general in favour of the one-turret ship.

[*Objection* 29.]—"A doubt whether, under the system of tripod masts, there is sufficient elasticity in the legs of the tripod to withstand the working of the vessel, they being fixtures at both ends."

[*Answer.*]—The Committee, in raising this doubt, were perhaps not aware that in a strong iron-framed ship, such as iron-clads, there can be little or no working, and that the same amount of working or elasticity that would be due to the iron ship would also be due to the iron masts. The principle of these masts is, that they should be as nearly rigid as it is possible to make tubular structures; and the three tubes of the tripod masts would always exert a combined support to each other, one part being in compression whilst the other is in tension. I find that these masts, taking weight for weight with ordinary iron ones and rigging, will be incomparably stronger. The tripod legs should pass through one or more decks, making themselves self-supporting; one or two light shrouds may be added on each side, if preferred, to act as Jacob's ladders for the men to go aloft. Improvements may suggest themselves, but I hope the *Wivern* will soon prove the correctness of the principle, when, I think, their strength, durability, and economy, without mentioning smaller advantages, will recommend them equally for the mercantile as well as Royal Navy.

[*Objection* 30.]—"A doubt as to the expediency of arming a ship with guns of the weight of 22 tons, it not being yet clear that such heavy guns are necessary, guns of half that weight having been found to pierce the thickest plates yet put into a ship. Again, there are no such guns at present adapted for the naval service."

[*Answer.*]—Since this objection was raised, the *Hercules* target has left no further doubt as to the expediency of carrying more effective guns than the 12-ton guns used against it; and it now remains a matter for experiment and competition among the rival guns, whether our future gun is to be more or less than 22 tons weight. All I can profess is, that whatever weight that gun may eventually be, I will undertake to work it at sea with all the advantages attendant to the central armament principle over the broadside. And I take this opportunity of pointing out to their Lordships that the winches for controlling these guns in a sea-way, which both Captain Osborn and myself asked for eleven months ago for the *Royal Sovereign*, as the only important improvement required, have not yet been fitted, greatly retarding the fullest development of the invention.

[*Objection* 31.]—"Doubts appear to be entertained of the sea-going qualities of the ship, more especially as to pitching and rolling."

[*Answer.*]—On looking over the evidence, I find the following opinions given on this point:—Mr. Scullard, 406: "I think she would roll less than an iron ship plated at the "sides." Mr. Scott Russell, 550: "I would say, with regard to the lines of the vessel, that "I think them very good lines." Mr. Reed, 955: "I think she would be a very easy "vessel, her extremities being light and her form good." I therefore think that I may claim some credit for the naval architect, Mr. Scullard, as well as for the central armament principle, admitting her extremities being "kept light," and her form being better than with the square-box principle. Assisted by this evidence, which I regret should ever have been kept from me, I have now answered the objections forwarded to me by the Committee, and I think it must be admitted, from the tenor of those objections, how perfectly justified I was in declining to answer them until I had seen the evidence upon which they had been raised. To have answered them in the dark would have been an injustice to myself as well as to this great national question; and I must now beg to call attention to the list of advantages, set forth by the Committee, which have to be set against the objections.

"Admiralty, 28 June 1865.

"The revolving turret system of armament, as applied to a sea-going ship."

"[ADVANTAGES.]"

"The distinctive advantages of this mode of armament appear to us to be:

"(*a*) That it is the most efficient mode of carrying and working very heavy guns in a sea-way.

"A steadier platform is obtained, from which to fire.

"A gun mounted in a turret is higher out of the water, and being also in the centre of the ship, can therefore be fought longer and more efficiently in a sea-way than when mounted on the broadside.

"The extent to which the gun can be trained in a turret is only limited by the obstructions on the deck.

"There is also greater facility of training than with broadside guns, as at present fitted.

"When under the fire of musketry the port in the turret can be turned away from the enemy, while the gun is being loaded.

"More elevation can be given to the guns on the turret system than on the broadside, as ports are now fitted.

"So far as being able to keep the gun when loaded always pointed towards the object, a greater rapidity of fire is obtained by the turret system, the captain of the turret having at all times a distinct view of his object, which, in a sea-way, would be frequently lost sight of by the captain of a broadside gun; and, further, the object is less liable to be interrupted by smoke.

"(*b*) There is better protection for the men fighting the gun who are actually inside the armour-plated part of the turret, and also for the gun and carriage, in the turret system than in the broadside.

"(*c*) We believe that a turret, with 6-inch armour plating, would be almost invulnerable as regards penetration, against any guns of less weight than 12 tons.

"(*d*) A ship armed with two turrets has the advantage of being able to direct all her guns on the same object on more bearings than by any other known plan; and of throwing a heavier weight of metal on either broadside than can be done by any armour-plated vessel of equal size and tonnage armed in any other mode now afloat, or that has yet been designed, so far as we are aware of.

"(*e*) Of two vessels of the same speed, one armed on the broadside and the other armed with two turrets, the latter has a greater facility of placing herself to an advantage in action, by keeping head to sea in a sea-way than the broadside ship.

"(*f*) If the ship were totally dismasted and the crew disabled, a one-turret ship would probably, and a two-turret ship certainly, be able to continue the action to greater advantage than a ship armed on any other plan under the like circumstances.

"(*g*) When a ship has to go through an intricate channel, or up a winding river, when the enemy is always in range, the turret system would give a greater facility to a one-turret ship probably, and a two-turret ship certainly, of keeping her guns bearing on the enemy, while the ship would be following the course of the channel or stream."

When such decided and solid advantages as these, throwing the list of objections entirely into the shade, I might have rested content were merely pointing out the few misapprehensions the Committee were led into by some of the evidence, for really most of their objections refer to matters of detail, and in no way affect the broad principle which I have advocated for fighting ships carrying their guns on the central armament.

However, as allusion was made in the evidence to private information relating to the *Rolf Krake* and the Monitors, stating that the *Rolf Krake* was put out of service in consequence of her turret being struck on the base, I beg to state I have evidence from an English gentleman who, when she was at Copenhagen, after her last action, went on board her, and described her as having her mast shot away, her bulwarks and boats, and funnel much knocked about, and upper deck much cut up, with a hole of one shell through her deck, but that the turrets had never been put out of working order; and I have this also corroborated by private letters from Danish officers; therefore, in absence of these private letters which the Controller speaks of (though I shall be happy to compare my information with his and see where the mistake is), I must respectfully beg to differ with him, as all the information I have received is diametrically opposite to his. Again, as the Controller of the Navy speaks of private and secret American information he has received being prejudicial to turrets, in absence of the production of that information, I may be permitted to quote some official information contained in the reports made of iron-clads to the Secretary of the United States Navy, bearing date of 26th February 1864, when

Admiral Golborough says:—" A difference of opinion also exists among naval minds, " both at home and abroad, as to whether the better expedient is to use the guns of an " iron-clad turretwise, or in broadside ports, under a covering plated deck. For my own " part I have little doubt upon the subject, particularly if the vessel herself be confined, " as in my judgment she ought to be, to moderate dimensions; to such in effect as, with a " high velocity, will offer sufficient momentum, used as a ram, to crush effectually any " antagonist whatever, capable of sea service; and more than this, to my apprehension, is " obviously worse than superfluous. The turret I regard as decidedly preferable, and " mainly for these reasons; it renders one gun of a class equivalent to at least two of the " rams disposed in opposite broadside ports, and this with a great reduction ef crew. It " admits the use of much heavier guns. It does not necessarily involve a breadth of " beam antagonistic to velocity. It affords a better protection to guns and men, and " withal it secures the fighting of guns longer in a sea-way.

" I have met with no ideas with regard to sea-going iron-clads that have impressed me " so forcibly as those of Captain Coles, of the British Navy; and I think his system in " the main the best that can be adopted at present. In my humble opinion he meets the " difficulties of the case better than they have yet been met in any other quarter; and he " displays throughout his exposition a fertility of resource, a fund of ingenuity, common " sense, and professional experience, that confers upon him distinguished credit."

With reference to the design in question, although the Committee in their report do not refer directly to the *Pallas*, it must be remarked that nearly the same proportions of breadth to length of 4·3 to 1 have been kept in the turret-ship; for although I was fully aware of this grave defect in both vessels, requiring a disproportionate power to force them through the water, yet to enable a true comparison to be made between the two systems of armaments I retained their dimensions, though it is not compulsory, as Admiral Golsborough says, for " the turret does not involve a breadth of beam antagonistic to velocity," whilst in the square box system it is compulsory to enable you to carry or work the guns at all; the *Pallas*'s great failure in speed is not only due to her proportion of length to breadth, but from the projecting bow or plough under water, which throws such a volume of water against the upper portions of her bow, that until the form of her bow is entirely altered it will be impossible to get her speed up within two knots of that estimated;* and since it is admitted by the evidence that the turret-ship, with all her defects, has greater speed than the *Pallas* has realised, as well as greater offensive and defensive powers, I think I am justified in saying that, with the assistance of Mr. Scullard, I have in this instance so far realised my professions contained in my letter to their Lordships, of 22d November 1864, where I say—" That I will, with the assistance of a competent " draughtsman and naval architect, design a sea-going turret-ship to compete with any ship " Mr. Reed has built or is building; that she shall be equal, if not superior, to any one of " them in the essentials of a man-of-war, in speed, defence, sea-going qualities, and decidedly " superior in offensive powers." However, the Committee do not recommend this ship to be built, in cansequence of her armament being limited to one turret. I regret this, for although she may not be perfection, she would be incomparably superior to anything Mr. Reed is building; and now I fear another year will be lost before it is decided what sea-going turret-ship is to be built, for we must have one, two-turret, and three-turret ships; and I may ask what would have been the fate of the *Pallas*, with her inferiority of armament and speed, had her designs been referred to a Committee?

In conclusion, this Committee say:—" We have stated that we do not recommend a ship " should be built upon the design submitted by Captain Coles, although great pains have " evidently been bestowed upon the preparation of that design. We have come to this " conclusion for the reasons already set forth, more particularly on account of the whole " of her armament being comprised within one turret. But the advantages of the turret " system of armament appear in many respects to be so great, and the facilities which it " affords for carrying the heaviest description of ordnance are so great, while we believe it " to be very questionable whether it will be found possible for guns of the weight of 12 " tons and upwards to be as safely and efficiently carried in any other way, that, notwithstanding many attendant disadvantages, we submit that the matter should no longer be " left in doubt, and that a trial should be given to the system in a sea-going ship, armed " with two turrets, as suggested in paragraph 10 of this report. The dimensions and " plans of the turrets themselves should be prepared and settled before entering on the " design of the ship."

From this and other evidence the question now appears to be fined down as to what extent this system can be adopted for sea-going ships, for the Controller even says: " I consider a modified turret-ship superior to all others for harbour and coast defence." It now only remains to carry out the strong recommendation of the Committee to build a two-turret ship without loss of time. I am perfectly ready to give my assistance in any direction or to any extent in my power to carry out this recommendation. It matters not by whom she is designed, so long as a good and serviceable ship to the country is produced, that will thoroughly embody the power of this invention, for carrying and fighting the heaviest ordnance at sea on the minimum tonnage; but I think it would be advisable to stipulate that the naval architect to whom the designs are entrusted, is not opposed to the turret system, and should ensure a higher rate of speed than that which the *Pallas* or any

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* Since writing this I find the *Pallas's* bow is being altered.

PLATE IV

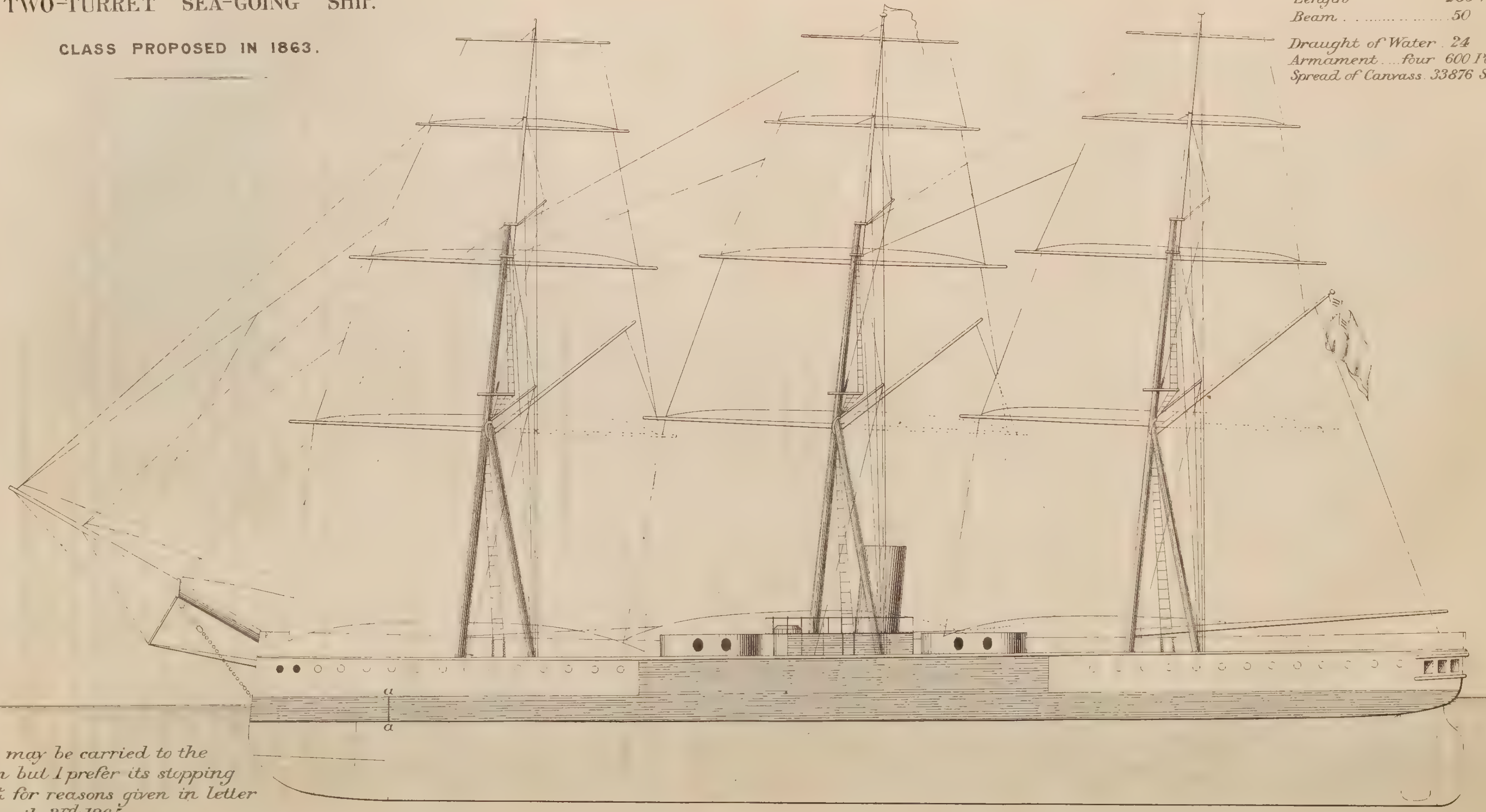
FIG. 1

TWO-TURRET SEA-GOING SHIP.

CLASS PROPOSED IN 1863.

GENERAL DIMENSIONS

Length	*286 feet*
Beam	*50*
Draught of Water	*24*
Armament	*four 600 Pounders*
Spread of Canvass	*33876 Square feet*



Belt may be carried to the Stem but I prefer its stopping at $\frac{a}{a}$ for reasons given in letter of April 3rd 1865.

any other square-box ship yet tried possesses, or than we may even anticipate from those building. While on this point, let me again call attention to the little beam required for the accommodation of the turrets, or central armament, not being "antagonistical to "speed," and admitting of a better proportion of breadth to length being observed than with the broadside or square box principle; but as length, when wholly plated entails proportionate weight of armour, my views become daily more confirmed that to obtain these two great desiderata the extent of plating towards the bow must be limited, trusting to cellular compartments, as explained in my letter of 3d April 1865, which accompanied the design of a ship carrying one turret, and two 600-pounders. I have already alluded to a turret-ship designed by Mr. Barnaby, one of the Admiralty draughtsmen, in 1863, which has never been heard of since. Plate IV. gives a general idea of such a class of ship, but I am now prepared to show many modifications and improvements in the adaptation of the central armament principle to all classes of vessels for coast defence and sea service; for instance, I now would advocate twin screws, steel frames and hull, &c.

I need scarcely assure their Lordships of my readiness to co-operate with them in carrying out the suggestions of the Committee as regards the construction of a two-turret ship.

In conclusion, I trust I may be permitted to express to the Committee my thanks for their kind consideration and courtesy to me during their labours, and my regret that I should have been prevented by illness from attending on them personally. It is a source of gratification to me, however, that even under these circumstances the Report should have resulted so favourably to the turret system.

I have, &c.
(signed) *Cowper P. Coles.*

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 2 October 1865.

WITH reference to your letter of the 26th ultimo, I am commanded by my Lords Commissioners of the Admiralty to acquaint you that they received on the 30th ultimo, in the form of a pamphlet, dated 12th August, your observations on the report of the Committee on a sea-going turret-ship. My Lords will refer your observations to the Controller of the Navy, who, as you are aware, has been directed to prepare the plan of a sea-going ship with two turrets.

I am, &c.
(signed) *W. G. Romaine.*

Captain Coles, R.N.,
Auckland Villa, Southsea.

REPORT of the Controller of the Navy.

Sea-going Turret-Ship.

REMARKS on Captain Coles' Replies to Objections raised by the Committee.

Admiralty, S.W., 30 October 1865.

IN reading over with care the letter from Captain Coles, dated 26th September, and the printed pamphlet, dated 12th August, which were sent me by their Lordships on the 4th October, and returned to them on the 7th, and which I had not the opportunity of studying until the 25th of this month, I beg leave to state at once the course which I consider obligatory on me to follow.

As their Lordships' servant, however reluctant I may be to enter into controversy with any person with whom their Lordships may transact official business, I do not think it possible to pass over certain points and certain assumptions laid down by Captain Coles in this printed and written correspondence, without a plain and straightforward denial of their accuracy.

I shall, therefore, be obliged to go through these documents to point out the inaccuracies which materially influence the judgment to be formed on the whole question; for there is no escaping from the conclusion, that if Captain Coles' assertions and assumptions are in accordance with facts, he is perfectly right—the Committee and the Admiralty entirely wrong.

In the first place, the statement in the first page of the letter of 26th September, marked is inaccurate. Captain Coles *did* hear from their Lordships and from me on the subject of this design, was asked for explanations, which he never gave, and received an invitation from their Lordships to proceed with his designs when he considered them sufficiently matured.

See Controller's letters of March 20th, May 21st, May 27th, June 1st, to Captain Coles; also Controller's letter to the Board June 9th; the Board's letter to Captain Coles of June 17th, and their letters to him of June 30th and July 24th, 1863.

The paragraph marked at page 2, is inaccurate; the important points referred to were communicated to Captain Coles, not only by the copy of the report of the Committee, but by the copy of the evidence taken before it, both of which were communicated to him by their Lordships. Captain Coles' disclaimer of any responsibility as to the designs of the "Wyvern" and "Scorpion," is, to say the least of it, at variance with other statements publicly made, and did not take place before the vessels had been purchased and the hour of trial was at hand.

Furthermore, Captain Coles was consulted as to the fitting of the "Wyvern"; the whole of the cabin arrangements were altered at his request; the complement was increased, the tripod masts were constructed, and the only point in which his advice was not followed was as to some head accommodation for the ship's company, about the arrangement of which great difference of opinion existed between Captain Coles and other officers just as competent to form an opinion as himself.

Their Lordships and Captain Coles are quite aware of the sufficient reasons that induced them to direct that the "Scorpion" should be tested at sea, as she was designed by her constructors.

The statement, therefore, that he was not allowed to make some important alterations for the comfort of the ship's companies of these ships is uncandid, to say the least.

With these remarks, which it is most unpleasant for me to make, and which only a strong sense of my duty as a servant of their Lordships, compels me to put forward, I leave Captain Coles' letter of the 26th September, and proceed to his pamphlet.

The pamphlet of Captain Coles professes to be an answer to the objections raised by the Committee to the design of a sea-going turret-ship submitted by him for the approval of their Lordships, and the line he has taken is at any rate ingenious

He starts with an assumption that his offer, finally accepted by the Admiralty, was to produce a sea-going turret-ship to "compete with any ship Mr. Reed has built or is building; that she shall be equal, if not superior, to any one of them in the essentials of a man-of-war, in speed, defence, sea-going qualities, and decidedly superior in offensive power."

Now, this offer to compete was distinctly *not* accepted by the Admiralty. Their letter of the 24th November 1864, states that "they wish you to understand that their object is *not* to institute a comparison with any other vessel, but to obtain a ship combining an armament of the heaviest guns, with high speed, and good sea-going qualities."

After this, to say, as Captain Coles has done, that their Lordships closed with him on the first proposition, and the "Pallas's" drawings were given me to compete with, is certainly inaccurate.

I prefer not to revert to conversations at which I was not present, but to ask their Lordships, who took part in them, what their recollections are as to what passed in Sir F. Grey's room, and whether much pains were not taken to dissuade Captain Coles from thinking of a competition with any other ship, and especially from competing with the "Pallas," a ship of a special type, designed 17 months before, to be built of timber in a dockyard where no appliances for building iron ships existed, and not intended to be repeated.

Captain Coles has chosen to take a contrary course; and almost every objection taken by the Committee to his design is replied to by a comparison with the "Pallas," and an assertion that his design is immensely superior to her.

Even if this view of the case were considered as substantiated, I submit that not one step has been taken by Captain Coles to remove the difficulties which beset the naval architect in endeavouring to design a turret-ship free from the objections which the Committee have made.

In order to show how thoroughly this is the case, I have gone through each objection and the answer made to it by Captain Coles, and however wearisome and painful to any candid mind the task must necessarily have been, I have made my own remarks on the answers.

The answers given by Captain Coles to Objections 1 and 1 *a*, *b*, *c*, and *d*, do not in the least assist a designer of a sea-going turret-ship in considering how the objections are to be got over. He either admits virtually that all the objections are founded on reasonable considerations, or puts his own opinion in opposition to that of the Committee, or disposes of them by reference to competition with the "Pallas."

In his answer to Objection 2, he calls the "Pallas" overloaded. The reverse is the case; she has proved extremely buoyant, and capable of carrying more weights than she was designed for (including an increased extent of armour-plate upon the bow); and he further states, with reference to the ship being boarded, &c., that "the occurrence is not very likely," and that his ship is better capable of resisting boarders than the "Pallas."

Objection 3 is answered in a satisfactory manner, in my opinion.

Objection 4 is not answered satisfactorily, nor in accordance with the facts of the case. The power of depressing in a broadside port is greater than it can be in a turret, and far greater than has been given either in his design or in the "Royal Sovereign."

Objection 5 is answered by finding fault with the arrangements in two small converted ships, and again referring to the "Pallas," and to conjectures as to the effect of the sea upon her bow, which, it is hoped, will not be realised.

The training of the "Pallas's" guns, as given by Captain Coles, and illustrated in his diagram, falls very much short of the training which her guns will actually possess, owing to the increased extent of armour on the bow, of which he is probably not aware. Her protected guns will now command an enemy from 30° abaft the beam completely round the bow to the same angle abaft the beam on the opposite side, with the addition of the fire from the after bulkhead ports. The discrepancies of Captain Coles' statements on this point, which he repeats frequently, only serve to show how unsatisfactory it is to pursue, as he does, these premature comparisons with the "Pallas."

Objection 6 is not satisfactorily replied to in some respects, and is one which would embarrass a designer; but the trial of the "Wyvern," ordered by their Lordships, will elucidate all the points with respect to tripod masts, upon which a designer requires information.

Objection 7 is not candidly answered; no rifled shot have been fired along the "Royal Sovereign's" deck, and the objection is, therefore, not proved to be illusory.

Objection 8 is not one which a designer would find any difficulty in dealing with.

Nevertheless in the "Royal Sovereign" Captain Sherard Osborne did complain very much of this difficulty.

The answer to Objection 9 is of the same nature as so many others. The objection itself would not be practically of any great weight.

The answer to Objection 10 applies to a supposed mistake made by the Committee, as to the size of the turret; as no full particulars of the single turret were given in the design, the mistake, if made, was probably unavoidable, but I have reason to believe that the Committee went carefully into the question, and that their statement was made after due deliberation.

The answers to Objections Nos 11, 12, and 13, are assertions of his own opinion against that of the Committee; but they refer to gunnery details which can easily be settled by those whose whole time and study are given to that special branch of the naval service.

Objection 14 is met by a comparison with the "Pallas." The answer affords no guide to the designer in any attempt he might wish to make to remedy the objection.

Objection 15 is answered by denial of the fact stated. The answer is not ingenuous and not accurate; the protection on the orlop deck referred to is only about 2 feet high, and is not given abaft by "6-inch" armour-plates, but by 5-inch plates tapering to 3 inches, and that forward by 5½ tapering to 4 inches.

The men, if in these compartments, must pass over the unprotected deck for some considerable distance to get into the turret.

Objection 16 is not satisfactorily answered, though I do not think the objection of very great weight, but still the same system of reply prevails; the turret ship can do so and so followed by a purely conjectural assertion that the "Pallas" cannot.

Objection 17 is, I think, fairly answered, though the reference to the "Pallas" weakens the force of his reply.

Objection 18 is certainly not answered at all, and it is one which alone would have condemned the design.

The answers to these two Objections, Nos. 17 and 18, are not considered more in detail; for it appears to me to be trifling with a very serious subject to fight imaginary naval actions, in which the attack and defence are conducted by the same person.

Objection 19 is fairly met. The height of the ship out of water was regulated by the opinion the Admiralty had expressed in 1863. However, further experience at sea, and the opinion of the Committee show that the height proposed by the Admiralty was probably not enough. Captain Coles' design was an improvement in that respect. but this answer again drags in his conjecture about the behaviour of the "Pallas" at sea.

To Objections Nos. 20 and 21 Captain Coles places his simple opinion in opposition to that of the Committee.

To Objection No. 22 Captain Coles replies by an assertion which is scarcel candid; he says that the uptake is protected by 6-inch iron, &c., against horizontal fire, and against vertical fire by 1-inch iron.

Now, a glance at the drawing will show that only two feet of the uptake has any such protection, the remainder being wholly exposed; and the comparison which ensues, as usual, between this design and the "Pallas," omits the important feature that the "Pallas's" uptake and funnel are protected by the armour plating to a height of six feet above the water.

Objections Nos. 23 and 24, some of the most serious in the whole list, are dealt with much in the same manner as those already referred to. The narrowness of the belt, above water, and the risk of shot passing over the top of the belt and driving off the armour-plates on the opposite side below water, has always been considered an extreme difficulty, in dealing with an economical distribution of armour-plating.

He makes light of the chance, provides for the safety of the boilers, by lowering them and bringing coals over them, all of which is of doubtful practicability, and considers the other points of no great moment.

He certainly stands alone in this opinion, and again refers to the "Pallas," to prove the superiority of the turret ship.

Objection 25 is met by a simple assertion of his opinion, that it is no objection at all, and that it is a detail which may be altered.

Objection 26, taken with Objections 23 and 24, involve the whole question of the turret ship. The sacrifice of the armour-plating to the offensive power of the ship is carried to an extent which the Committee and the majority of the witnesses seriously object to. No answer is made to these objections, but what amounts to an assertion that the sacrifice made is a right and proper one.

Objection 27. To this objection Captain Coles, in fact, replies that his design will have greater speed than the "Pallas," as, after all the sacrifices made, the "Pallas" only attained a speed of 12½ knots on her trial. Captain Coles had exactly the same means of knowing that no proper runs at the measured mile were obtained during what he calls the trial of the "Pallas," and that important adjustments were required by the maker of the engines before a proper trial could be had, as he had of knowing that the estimated speed attained was 12½ knots; but this certainly appears to be a singular mode of replying to the objections made by the Committee, to assert that the ship which he has selected to compete with, did not realize the speed intended at a first and thoroughly inconclusive attempt to make a trial.

To Objection 28 he has no reply to make, other than he does not believe that a ship such as the Committee supposes might be built, could be built.

Objection 29 is fairly met and answered; it involves, however, mere opinions, and I confess that I think Captain Coles' opinion is worth as much as that of the Committee in this case.

Objection 30 is again met by opinion against opinion. As to the delay in fitting the winches required by Captain Coles for the "Royal Sovereign's" gun, their Lordships are aware how it occurred.

Objection 31. The Committee's objection, I confess, did not appear well founded, as it was, in my opinion, contrary to the evidence of those best fitted to judge. The statement in this objection, that the evidence was kept from him, is a curious mistake. Captain Coles recapitulates the advantages of the turret system as embodied in the Committee's report; they are considerable; but though, in his opinion, they outweigh the disadvantages, the Committee did not think so, applied as he had applied them in his design.

It is hardly necessary to refer to the private information communicated to the Committee. Captain Coles must be singularly ill-informed if he is not aware that there are as many (to say the least) public and official condemnations of the monitors, both by those who have fought in them and by those who examined them after actions, as there are favourable reports; and that to quote *one* favourable report as conclusive is treating the matter with absolute levity.

The remainder of this reply is chiefly occupied by unfavourable criticisms of the "Pallas" by conjectures which are treated as proved facts, that she will utterly fail in speed, &c. One assertion, that the "Pallas" would never have been built if her design had been referred to a committee of naval officers, appears to have been made, in forgetfulness of the fact that the design was carefully examined and approved by the naval officers forming the Board of Admiralty, who are, probably, as competent to form an opinion on such matters as any non-official committee could be. Captain Coles having argued this question throughout as a comparison between his design and the "Pallas," finishes by stating that this design, "though not perfection, would have been incomparably superior to anything Mr. Reed is building." Now this assertion, if true, certainly proves what I stated at the beginning, that, if Captain Coles were right, the Admiralty and all the rest of the world were wrong.

Can Captain Coles' design be superior in defensive or offensive power, in speed and sea-going qualities to the "Bellerophon"?

The extraordinary powerful armament of the "Bellerophon," her wonderful handiness, and the speed, 13·65 knots, she developed at an imperfect trial, when only 4,800 out of the 6,000 horse-power intended were used, would, I think, be sufficient answer to the question.

The last page, like the first, ends with an erroneous statement respecting a design for a turret ship, to which I have already referred.

I have in vain endeavoured to obtain any light from Captain Coles' pamphlet as to the true remedies to be applied to the objections made by the Committee "as to the amount of defensive power" which he is content with, and which, by economising weight, alone makes it possible for the heavy guns and large engine power required for speed to be placed in the ship.

I am equally unable to elicit from these replies what are the proper remedies to apply to the objections made as to the weak points where the turrets pass through the decks, as to the loading, fighting, and training of the guns through very large arcs, along great lengths of deck, in a revolving turret, where the space is small, and the liability to jam considerable.

No assistance is given to any designer how to avoid the risks of temporary moveable bulkheads being destroyed by the sea, and exposing the decks to be washed fore and aft, which the turret system necessitates.

On all these points no assistance in designing a turret ship is to be found in any of Captain Coles' replies, and the difficulties that I stated to their Lordships in my submission of 13th July, as existing, have not been in any way lightened by these replies of Captain Coles.

Notwithstanding some personal remarks about myself in Captain Coles' letters, I am as desirous as the most uncompromising advocate of the turret system to find a solution of the problem which shall be satisfactory, and I beg leave therefore to submit that my submission of 13th July, and its accompanying sketches, together with their Lordships' answers to that Minute, should be referred to Captain Coles for his observations, and with a request that he would state whether the outlines of either design would satisfy him; and if so, which he would prefer.

(signed) *Rob. Spencer Robinson.*

Captain *Coles* to the Secretary of the Admiralty.

One-Turret Ship.

Auckland Villa, Southsea,
26 September 1865.

Sir,

In forwarding the model of a one-turret ship proposed by me, which was put before the Committee in an incomplete state, I would beg to call their Lordships' attention to the following points:—

1. To the orlop deck where spare men would be protected in action, and not, as Mr. Reed said in his evidence, they would be placed in the holds.

2. Boilers are lowered 18 inches more than in the original drawings, and extra protection given to them by coal bunkers over their top.

3. Standing bulwarks and hammock-netting aft.

4. Fire can easily be obtained right ahead by leading cables down on lower deck, as in the "Royal Sovereign."

5. It will be seen that if a shot entered at the stem on the water-line, at 10½ degrees, it would have to pass through four water-tight compartments and iron platform at level of orlop deck, before coming in contact with the lower edges of armour-plated bulkhead of belt.

6. Sufficient bulwarks are only let down to show 45° of training each way; when all let down the extreme training aft is 76°; forward, 88°; total on one broadside, 164°.

I shall be happy to attend and give any explanations on my views of this model, and sea-going turret ships, and shall be glad to know of any doubts that may arise in their Lordships' minds.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq.,
&c. &c. &c.

P.S.—A circular disk is screwed on the inside of the lid of the case, by which, when pivoted on the turret, the training of the guns is readily illustrated.

C. P. C.

Captain *Coles* to the Secretary of the Admiralty.

Tripod Masts.

Auckland Villa, Southsea,
26 September 1865.

Sir,

In forwarding the model of the tripod masts, the same class as those fitted in the "Wyvern," I have the honour to make the following remarks:—

1. The model shows the tripod legs as in "Wyvern," not passing through the upper deck, but they would be better if they did; and I should recommend in future masts, that the tripod legs should pass through the upper deck on to the next one, being better both for ventilation and support.

In the "Wyvern," it would have necessitated much alteration to have cut the deck already in the ship, so I contented myself with the legs being fixed to the upper deck.

However, I have no apprehension upon this point, as the "Smertch," Russian turret ship of 1,400 tons, with tripod masts, has been in a heavy gale of wind, when the masts have been found to answer every expectation.

2. The top-gallant masts are rather short in proportion to the royal masts; they would be better if they were 18 inches longer.

I propose in action, not to send top-gallant masts on deck, but to lower them down until landed in the top, when the fid can be put in. The top-gallant masts, when thus housed, being abaft all, do not interfere with the topsails.

3. Trysail mast is of wood, but I prefer a ⌶ iron with suitable jaws for gaff to run on.

4. A Cunningham topsail may be used, if preferred.

5. One of the principal objects in these masts is to have as little rigging aloft as possible, when going into action. I would send down the top-gallant and royal rigging, and unreef everything except the gear actually necessary for working the topsails and fore and aft sails in action. These ropes, in a regular sea-going ship (the "Wyvern" has not room), I would lead down through and alongside the masts and legs to the deck below, so as to work the topsails without exposing the men.

On further trials, I have no doubt improvements will suggest themselves; for instance, I believe the top-gallant shrouds may be done away with, trusting only to the outriggers and backstays. Some ships which are being fitted with tripod masts, have an ordinary topmast fidded, but I prefer the long mast-head on which the topsail hoists, as in model.

The shrouds with ratlings (rungs would be better) are not intended for support, but merely for the men to go aloft by.

The modeller, Mr. Horn, has carried out my views and invention perfectly, and I would beg to call attention to the workmanship, but it may be necessary to give some personal explanation, which I shall be happy to do.

The top-gallant mast is struck to admit of the model being stowed in its case. I would suggest that Mr. Horn, the modeller, should be allowed to put the model in order after its arrival.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C.B.,
&c. &c. &c.

REPORT of the Controller of the Navy.

(No. 4419½.)

Admiralty, 31 October 1865.

THE models referred to have been examined. They are carefully executed; and as Captain Coles seems to ask for an expression of an opinion by their Lordships on that point, I have stated the fact.

To the remarks on the amount of protection afforded to the spare men on the orlops of his turret-ship, I have, by anticipation, replied in my submission of the 30th October.

The other points referred to in the letter accompanying the models have been fully treated of in the same paper. I do not think that the model, or accompanying letter, show that the dangers apprehended by the Committee, and the opinions given by many witnesses, on account of the narrowness of the armour belt, are in any way less than have been stated.

This economy of armour-plating, while it enables important weights to be saved and otherwise applied, does diminish the defensive power of the ship seriously, and the narrower the belt the greater the loss of defensive power.

I do not think that, after the condemnation of the design for a one-turreted ship pronounced by the Committee, Captain Coles need be further referred to about that design, but I submit that he may be informed that their Lordships will refer various matters to him connected with designing a sea-going turret-ship and tripod mast, so soon as they are in a position to do so.

(signed) *Rob. Spencer Robinson.*

The Secretary of the Admiralty to Captain *Coles*.

Sir, Admiralty, 2 November 1865.

HAVING laid before my Lords Commissioners of the Admiralty your letters of the 26th September, and the accompanying models of a turret-ship, with a plan for fitting tripod masts, I am commanded by their Lordships to acquaint you that the models are carefully executed, and have received full consideration. I am further to acquaint you that so soon as they are in a position to do so, their Lordships will refer various matters to you connected with designing a sea-going turret-ship and tripod masts.

I am, &c.
Captain Coles, R.N., (signed) *W. G. Romaine.*
Auckland Villa, Southsea.

The Secretary of the Admiralty to Controller of the Navy.

Controller of the Navy, Admiralty, 13 October 1865.

With reference to your report, No. 2646, of the 13th of July last, submitting, for their Lordships' consideration, the principles and leading desiderata to be kept in view in designing a sea-going turret-ship, I am to acquaint you that, so far as their limited experience enables them to decide, they consider—

1. Fore and aft fire.

1st. That to obtain a good sea-going vessel the fore and aft fire of the turrets should be given up, so far as may be requisite, to allow of fixed bulwarks forward and aft, combined with a forecastle, and with or without a poop.

2. Position of turrets.

2d. Adopting this principle, the turrets should be placed as close together in the centre of the vessel as other arrangements will admit of, and bow and stern guns in addition, either protected or partially protected, should be provided.

3. Height of deck.

3d. The deck, when cleared for action, being wholly unprotected from the sea, should not be less than 14 feet above the water-line, and the sills of the turret ports should be from 6 to 12 inches above the deck, both to prevent the entry of water and to give more depression to the guns.

The height of the deck above the water-line will to some extent govern the amount of armour-plating. A belt should extend round the ship from 5 feet below the water-line, to the iron deck on which the turrets work.

Before and abaft the turrets an armour-plated transverse bulkhead should extend from the upper deck below the water-line; between these bulkheads the armour-plating should extend to the upper deck, and, if possible, be carried sufficiently high to protect the base of the turrets where they pass through the upper deck.

The armour-plating should be not less than 5½ inches thick and 6 inches at the water-line, backed by 24 inches of teak and an inner skin.

Turrets.

Note.—Mr. Whitworth's 15 ton gun is 14·8 over all, and the projectile is 27 in. long.

The turrets should be two in number, made of sufficient strength and internal diameter to carry two 15-ton guns, or one of larger size to be decided hereafter.

Masts.

The masts should be considered only as auxiliary, and their supports should be so arranged as to offer the least amount of obstruction to the training of the guns.

This may be accomplished either by tripod masts or by giving to the masts such strength in themselves as would admit of the removal of the shrouds amidships when going into action with the upper masts down.

By command of their Lordships,
(signed) *W. G. Romaine.*

Report of Controller of the Navy.

Two Turret Ship.—Captain Coles' Plan.

Admiralty, S.W., 27 October 1865.

With reference to their Lordships' Minute of 2d October, and Order of 13th October concerning the design of a two-turret ship, I beg leave to state that I have caused the investigations essential to the working out of such a design to be entered upon, but before the work advances too far I desire to call their Lordships' attention to those passages of the Turret Ship Committee's Report in which they speak of the desirability, first, of furnishing the constructors with drawings and particulars of the turrets before the design is carried out; and, secondly, of the necessity of firing at a turret before a ship is built. These passages are as follows:—

"The dimensions and plans of the turrets themselves should be prepared and settled before entering on the design of the ship." And,

"As we cannot find it on record that a turret constructed on Captain Coles' present principle has ever been fired at in this country, we think it very desirable that such an experiment should be made, and the effect of shot and shell from guns of 12 tons or upwards upon the turret and its machinery ascertained, so far as can be done by experiment, before incurring the expense of building or fitting a sea-going ship to be armed on the turret principle." (page 14.)

With reference to the first of these passages, I beg leave to state that I entirely concur in the Committee's recommendation, and desire to be furnished, as quickly as possible, with drawings and descriptions of the turrets, showing the manner in which they are to be worked, and the minimum space which will be required around them, between decks, clear of all hatchways, cabins, and other obstructions.

I presume these plans of turrets will be prepared either by, or in communication with, Captain Coles, who should be required to make the information full and definite on these points.

With reference to the Committee's proposal to fire at a turret before the order for building the ship is given, I would simply desire to recall their Lordships' attention to it, as every step they may think right to take in this matter may hereafter be the subject of discussion in places and at times where it is not easy to get the exact truth clearly and definitely stated.

Meantime such parts of the design as can be proceeded with in the absence of the drawings of the turrets shall be gone on with.

(signed) *Rob. Spencer Robinson.*

The Secretary of the Admiralty to the Controller of the Navy.

Controller of the Navy, Admiralty, 28 October 1865.

WITH reference to your report of the 27th instant, in regard to the design in course of preparation of a two-turret ship, I am to acquaint you, in regard to the necessity of obtaining full particulars in regard to the turrets before proceeding with the design, that there are to be two 15-ton guns in each turret, and you are to communicate (in writing) with Captain Coles as to the preparation of the detailed plans for the turrets.

By command of their Lordships,

(signed) *W. G. Romaine.*

P. S.—It is not intended that a turret should be fired at with heavy guns as an experiment.

The Controller of the Navy to Captain *Coles*.

Two-Turreted Ship.—Information, &c., wanted.

(8734—65.)

(4369.)

Sir, 30 October 1865.

THIS Department being engaged, by order of their Lordships, in the preparation of a design for a two-turreted ship, I beg leave to call your attention to the following passage in the Report of a Committee of Naval Officers appointed to examine the design of a sea-going turret ship submitted to the Admiralty by you. . . . .

"We submit that the matter should no longer be left in doubt, and that a trial should be given to the system in a sea-going ship, armed with two turrets, as suggested in paragraph 10 of this report."

"The dimensions and plans of the turrets themselves should be prepared and settled before entering on the design of this ship."

I have further been informed by their Lordships that they consider that each turret should contain two 15-ton guns, and that I should apply to you to be furnished with the particulars referred to in the passage from the report which I have quoted.

I shall, therefore, be much obliged by your sending them to me at your earliest convenience, and I would suggest, for your consideration, whether, as you may probably not have any drawings or plans prepared for 15-ton guns, and have most likely all the particulars you would require for 20-ton guns, you would like to send forward the latter at once, as it is clear that if the design of the ship is prepared for two turrets to carry two 20-ton guns each, it will equally apply to a ship to carry two turrets to carry 15 tons each.

I am, &c.
(signed) *Rob. Spencer Robinson.*

To Captain Coles, R.N.,
Auckland Villa, Southsea.

Captain *Coles* to the Controller of the Navy.

Turret for Sea-going Ship.

Sir, Auckland Villa, Southsea, 31 October 1865.

I HAVE the honour to acknowledge your letter of the 30th instant, informing me that your department are engaged in the preparation of a design for a sea-going turret-ship, and quoting the Committee's report of 28th June, recommending that "The dimensions and plans of the turrets themselves should be prepared and settled before entering on the design of this ship."

In order that I may decide upon the dimensions and most efficient plans of a turret that I would now recommend for a sea-going turret-ship, I have requested their Lordships to allow me to be furnished with a copy of Captain Key's report upon the "Royal Sovereign," when the plan of the turret for a sea-going ship shall have my immediate attention, and be submitted to you with all dispatch.

I have, &c.
(signed) *Cowper P. Coles.*

Rear Admiral R. S. Robinson.
&c. &c. &c.

Captain *Coles* to the Secretary of the Admiralty.

Turret for Sea-going Ship.

My Lord, Auckland Villa, Southsea, 31 October 1865.

HAVING received a letter from the Controller of the Navy, informing me that his department are engaged in designing a sea-going turret-ship, quoting the following paragraph from the Committee's report of 28th June, recommending that "The dimensions and plans of the turrets themselves should be prepared and settled before entering on the design of this ship," and requesting me to forward plans of the turrets, I would now propose for two 15-ton guns or two 20-ton guns.

I have respectfully to refer your Lordship to my letter of September the 9th, in which I requested to be allowed a copy of Captain Key's report on the "Royal Sovereign," but to which I have received no answer. I now have the honour again respectfully to request that I may be allowed a copy of that report, in order that I may decide upon the dimensions and best plans of a turret that I would now propose for a sea-going ship.

On the receipt of which I will lose no time in furnishing drawings and all necessary information.

I have, &c.
(signed) *Cowper P. Coles.*

The Right Hon.
Lord Clarence Paget, C.B.,
&c. &c. &c.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 3 November 1865.

In reply to your letter of the 31st ultimo, addressed to the Controller of the Navy, I am commanded by my Lords Commissioners of the Admiralty to acquaint you that a copy of Captain Key's report upon the "Royal Sovereign," shall be sent to you in the course of a few days.

I am, &c.
(signed) *W. G. Romaine.*

Captain C. P. Coles,
Auckland Villa, Southsea.

Note.—The copy of the report referred to was sent on the 8th November.

REPORT of Trial of TURRETS and GUNS of the "Royal Sovereign."

Sir, "Excellent," Portsmouth, 11 July 1865.

I HAVE the honour to forward a report of the trials that have been made, under my superintendence, of the working of the turrets and guns of the "Royal Sovereign," in smooth water.

The report gives a detailed description of the fittings, as well as of the manner in which the trials have been conducted.

From the experience obtained during these trials, I can with confidence report that the mode of working the guns, gun-carriages, and turrets, is thoroughly efficient; many unimportant improvements have suggested themselves, which will be mentioned hereafter, and which might with advantage be adapted in other vessels similarly armed. The winches which Captain Coles has proposed to be provided for each gun, to run the gun in and to control it in a seaway, should certainly be fitted without delay. But, when it is considered that the system is entirely new, that such heavy guns had not previously been worked on board ship, that the mode of stowing and hoisting in the boats, the catting and fishing the anchors, steering apparatus, all required to be specially adapted to the mode of armament, I cannot but record my opinion that the greatest credit is due, not only to the original designer, but to those officers in the dockyard under whose immediate superintendence the work was executed and the details carried out.

It may not be out of place to offer a few remarks on the "Royal Sovereign's" armament, and the turret-system in general, premising that they are limited to those points which regard the offensive power of the guns, and their efficiency in action; those relative to the ship, as regards her other qualifications as a ship of war, will not be considered.

The principal advantages possessed by guns mounted in a turret are—

ADVANTAGES.

Extent of Training

1. The great command of horizontal training, enabling the guns to be worked on either broadside, and leaving no point of impunity on which the ship could be attacked. This advantage would be more prominent if the engines, or steering gear of the ship, were disabled in action; it also enables a ship to be placed in that position, with respect to the swell during action, which will ensure the most steady platform.

Power of training whilst loading. Security of Gun's Crew.

2. The power of training the gun while loading, thus being enabled either to turn the port away from the enemy, for the better security of the crew, and to prevent the sea from entering the port; or, if thought more desirable, to point the gun constantly at the object, so that it can be fired directly it is run out.

3. The more complete security of the gun's crew from the enemy's fire, as the size of the port may be reduced, and the thickness of the turret increased, without much additional weight to the ship.

Disposition of Weights.

4. The removal of a large portion of the weight, necessarily carried by an armour-clad ship, from the side to amidships.

These are important advantages, as they tend to increase the offensive power of the armament, especially that first named, which I consider to be the main point on which any superiority claimed for the turret system must be based.

DISADVANTAGES.

A turret-ship has, on the other hand, the following disadvantages, when comparing it with a ship of equal size, armed, with guns of equal weight on the broadside and extremities:

Fewer Guns.

1. Fewer guns, thus reducing her offensive and defensive powers, if attacked by more than one ship or fort.

2. If one gun or turret is disabled, a larger proportion of the armament is thereby thrown out of action.

Liability to damage.

3. The liability of the machinery for turning the turret being damaged or disabled, either by a shot entering the side and striking it—by splinters getting under the rollers—or by a shot striking the upper deck in the wake of the turrets, which, although it might be deflected upwards, would probably jam the turret by the iron deck, beams, or other iron work being pressed against it.

Rapidity of Fire.

4. Heavy muzzle-loading guns cannot be worked with the same rapidity in a turret as on a broadside, as the men have not so much space to work in, and do not stand on the level of the gun-carriage.

In the "Royal Sovereign," a gun's crew of 30 men, who had been carefully trained in a turret for nearly a year, and who had fired about 100 rounds with shot, besides much practice without firing, completed 10 rounds as follows, the quickest 10 consecutive rounds being selected, *vide* Report B.:—

Two-Gun Turret.		One-Gun Turret.	
Rounds.	Interval.	Rounds.	Interval.
	′ ″		′ ″
1 - - - - -	1 48	1 - - - - -	1 44
2 - - - - -	1 49	2 - - - - -	1 18
3 - - - - -	1 59	3 - - - - -	1 18
4 - - - - -	2 1	4 - - - - -	1 26
5 - - - - -	1 49	5 - - - - -	1 17
6 - - - - -	1 43	6 - - - - -	1 19
7 - - - - -	1 48	7 - - - - -	1 29
8 - - - - -	2 6	8 - - - - -	1 25
9 - - - - -	1 51	9 - - - - -	1 18
10 - - - - -	2 5	10 - - - - -	1 17
Total - - -	18 59	Total - - - -	13 51
Mean - - -	1 54	Mean - - - -	1 23

In the "Minotaur," under the same circumstances as regards weather, but with a gun's crew of 16 men, who had never worked a 12-ton gun, or been stationed at it, until the first of the two days trial, we fired 10 consecutive rounds as follows, the quickest being selected as before:—

Rounds.	Interval.
	′ ″
1 - - - - - - - -	1 5
2 - - - - - - - -	1 2
3 - - - - - - - -	1 16
4 - - - - - - - -	0 59
5 - - - - - - - -	1 16
6 - - - - - - - -	1 23
7 - - - - - - - -	0 59
8 - - - - - - - -	1 1
9 - - - - - - - -	1 4
10 - - - - - - - -	1 2
Total - - - - -	11 7
Mean - - . - -	1 7

The shortest interval between two rounds in "Royal Sovereign" was 1′ 17″; in "Minotaur," 59″.

In both cases a small target was fired at 1,000 yards distant, and good practice made.

The winches for running-in and controlling the guns in a seaway were not fitted in "Royal Sovereign," but would in no way have expedited the firing of the 10 rounds referred to, as there was no motion, and the gun came in far enough to load.

The loss of time in working the guns in the turret is in loading, the men have more difficulty in getting to their stations, and a little time is lost in bringing up the ammunition. It gains in pointing, as the object being kept on while loading, the gun can be fired the moment the word "ready" is given.

Elevation of Guns

5. It has usually been considered that the turret-system possesses an advantage in the amount of elevation that can be given to the gun. This is not the case, as the advantage in this respect practically rests with the broadside-gun.

The guns of the "Royal Sovereign," when on the upper step, can be given only from six to eight degrees elevation, by firing with the chase resting against the upper port sill; if lowered to the lowest position, which occupies about 17 minutes, they can be given 18 degrees elevation, when fired as before, and 12 degrees, if required to come in clear of the port; the gun cannot then, however, be fired with *less than* seven and a half degrees elevation; this operation could not be performed, therefore, if there were any probability of an attack by ships, as the guns could not be fired at an object within 3,000 yards.

A 12-ton gun, mounted in a broadside port 48 inches in height, can command six and a half degrees depression and 15 degrees elevation by the usual method at all times, which is ample for all purposes of naval warfare.

Clearing for Action.

6. The necessity for clearing the upper deck for action must always act disadvantageously in the turret-ship if she is fitted as a sea-going ship. All the fittings must be made portable, and all work with the anchors and cables, sails, or ropes, will be prevented in action, as well as the clearing away wreck, caused by spars falling.

Low Upper Deck.

7. The nearness of upper deck to water-line must, in an iron-clad ship, be a source of great inconvenience to her as a sea-going ship; the impossibility of men remaining on deck in bad weather, the difficulty of battening down, and great force with which the sea would break over the ship, are difficulties which it will require much consideration and experience to overcome.

Accommodation.

The space occupied by the turrets, and the absence of gun-decks, renders it difficult, if not impossible, to provide properly for the accommodation of officers and ship's company; while the necessary clearness of the upper deck prevents her from carrying the requisite proportion of boats, spare spars, and other gear, which must ever form a necessary part of the equipment of a man-of-war.

Captain of turret.

8. The captain of the turret, a most important post, being the only man exposed to the enemy's fire, would be liable to be unsteady.

The points I have referred to are those which are inherent in the two different modes of armament. Many other points of difference might be mentioned, but they are such as might, with some modification, be adopted in either system.

No practical reasons exist why a heavy gun should not be worked on a broadside with the same security as in a turret; and I am satisfied that there is no difference between the two systems in this respect.

Consideration of advantages and disadvantages.

There can be little doubt that the great advantage possessed by the turret, of commanding such an extent of horizontal training, is of far greater importance than any one of the advantages inherent in the broadside system, but it is a question for consideration whether this important advantage counterbalances all the disadvantages combined.

I am of opinion that, for harbour defence and short voyages for the purpose of attacking a fortified position, the turret would prove of great value, but I do not consider that we could retain that superiority at sea which is necessary to our existence as a first-rate power, if we armed our fleet for ocean service in all parts of the world entirely on the turret-system, as its inferiority under the varied circumstances in which a ship of war must necessarily be placed, would prove to be very decided.

I would draw attention to the general remarks appended to the report now forwarded, especially to the necessity of providing the winches for the turrets of the "Royal Sovereign;" in any future turret-ship I would recommend that the gun carriages and platforms should be of wrought iron, and that the precautions I have suggested to guard against accidents on board should be adopted, as well as those which our experience in the "Royal Sovereign" has shown would otherwise increase the efficiency of the turrets.

I recommend that, wherever it is practicable, two guns should be placed in each turret; the armament of the ship is thereby doubled, with comparatively little increase of weight, space, or expense.

In conclusion, I append a table showing the total number of rounds with shot that have been fired from the "Royal Sovereign's" guns since she was commissioned in July 1864:—

	Registered Number of Rounds Fired from the Five Guns.	
	Practice with Shot previous to Present Trials.	During the Present Trials.
	Rounds.	*Rounds.*
40-lbs. charges - - - - - -	30	186
35-lbs. „ - - - - - -	74	125
20-lbs. „ - - - - - -	2	4
TOTAL - - -	106	315

I have, &c.
(signed) *A. Cooper Key*, Captain.

Admiral Sir M. Seymour, G.C.B.,
Commander in Chief.

Captain *Coles* to the Secretary of the Admiralty.

"Scorpion" and "Wivern."—Cross fire on the Decks, and Ventilation.

Sir, Madeira Villa, Ventnor, 29 November 1865.

SUGGESTIONS having been made by Captain Commerell and Captain Burgoyne, for improvements in Her Majesty's ships "Scorpion" and "Wivern," to further develop the powers of those vessels, giving great protection to the deck against boarders, and rendering it impossible to wedge the turrets (this is accomplished by carrying the hatchways up to the bridge, and making them of ½-inch iron, a certain number of loopholes being cut in them for riflemen, as shown in the accompanying drawing, and access being given from them to bridge), I have thought it right to point out to their Lordships that these suggestions made by those officers will be of the greatest value for sea-going turret-ships, it being found, from experience gained in those vessels, that the poop and forecastle interfere but little with the training of the guns, but at the same time give great comfort to the crew and officers, particularly when steaming head to wind.

I will content myself now by calling their Lordships' attention to these facts, but would beg them to believe that, from the success of these vessels, I see my way more clearly than ever that the great value of the turret and central armament principle will be for sea-going cruisers of great speed with minimum tonnage.

I have, &c.
(signed) *Cowper C. Coles.*

W. G. Romaine, Esq., C.B.,
&c. &c. &c.

REPORT of the Controller of the Navy.

"Scorpion" and "Wivern."

Admiralty, S. W., 20 December 1865.

WITH reference to Captain Coles' letter of the 29th November, received by the Controller December the 5th, it is extremely difficult to understand his proposal.

He considers it to be one for giving great protection against boarders, and for rendering it impossible to wedge the turrets.

I conceive he means that the fire from these defences would render it impossible for boarders to get upon the decks of the ship and wedge the turrets there; of course the turrets may still be wedged or jammed by the enemy's shot or splinters. Captain Coles' paper is also headed "ventilation," about which there is not a word to be found in the letter.

I cannot find anything from Captains Burgoyne or Commerell on the plan proposed by Captain Coles, which he says was suggested by them, nor does it appear to have been communicated to the Dockyard officers; consequently there is no report from them on the subject. It has not, therefore, been included in the estimates of the cost of fitting these ships, which have been already forwarded.

I do not think that their Lordships are of opinion that the poop and forecastle in these ships do not interfere materially with the training of the guns, nor do I clearly see the meaning of Captain Coles' final paragraph, that the great value of the turret and central armament principle will be for sea-going cruisers of great speed with minimum tonnage, inasmuch as the "Scorpion" and "Wivern" are ships of upwards of 1,800 tons, have only a speed at their load draught of 10·515 and 10·05 knots respectively, and require an extra expense of at least 10,000 *l.* apiece to make them serviceable as cruisers, and fit for the habitation of their officers and men.

Considering the very vague terms of Captain Coles' letter, and the other circumstances to which I have called their Lordships' attention, I do not see that anything else can be done than to acknowledge the receipt of it with thanks, which accordingly I beg leave to submit be done.

(signed) *Robert Spencer Robinson.*

Captain *Coles* to the Secretary of the Admiralty.

1, Southsea-terrace, Southsea,
20 November 1865.

Sir,

In compliance with your letter of the 3d of November, acquainting me that in a few days I should receive Captain Key's report on the "Royal Sovereign," a copy of which I received on the 10th instant, I now have the honour to forward you to-day by rail two sets of drawings of turrets to carry each two 600-pounders, or guns of that dimension. One set of drawings shows the turret plated with 10-inch iron, 3-inch angle iron, and 10-inch frames, and 1-inch skin; the other set of drawings show 5½-inch iron all round, with 10-inch iron in the vicinity of the port-hole. I would beg to point out that to carry the 10-inch plating all round (supposing all other parts to be equal) only increases the weight of the turret 25 tons.

I have sent these two sets of drawings, showing a different thickness of plating, as I do not know what thickness of plating the sea-going ship which the Controller's Department are about to design is to have; but I would remark that the thickness of the turret's armour should be proportionate to that of the ship's side, and that the 10-inch armour turret, with 1-inch inner skin, presents a stronger resisting power than the sides of any iron clad yet in the course of construction in this country.

In submitting these drawings to the Controller's Department, I have to point out that they are complete as general drawings, but not in small details.

I propose many and great modifications in some cases for turrets, suiting them to vessels of all classes, particularly where high speed is required.

I have also great improvements in the actual construction and fastening together of the turret, which would enter into too much detail for general drawings.

Should any explanations be required of the drawings forwarded, I shall have great pleasure in giving them, and must again assure their Lordships of my readiness to assist and co-operate in the design and construction of a sea-going turret-ship.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq.,
&c. &c. &c.

The Controller of the Navy to Captain *Coles*.

(4819.)

27 November 1865.

Captain Coles is requested to be good enough to inform me whether, in the case of a revolving turret carrying the heaviest guns, and enclosed within a battery, any clearance is required between the side of the turret and the bulkhead of the battery, and, if so, how much.

(signed) *Robert Spencer Robinson.*

Captain C. P. Coles, R.N.,
Madeira Villa, Ventnor, Isle of Wight.

Captain *Coles* to the Controller of the Navy.

Clearance round Turret.

Sir, Madeira Villa, Ventnor, 28 November 1865.

In reply to your letter of yesterday's date, requesting to know what clearance is necessary "between the turret and the bulkhead of the battery," I have to acquaint you that it depends upon whether the bulkhead is circular or square, where the ammunition is to be supplied from, and various other matters of detail. It, therefore, is necessary that I should be furnished with a sketch of the battery in which the turret is to be placed, and further particulars, before I can answer your question.

I have, &c.
(signed) *Cowper P. Coles.*

Admiral R. S. Robinson,
&c. &c. &c.

The Controller of the Navy to Captain *Coles*.

(4860.)

Sir, 30 November 1865.

In reply to your letter of the 28th instant, I beg leave to state that it is proposed to enclose the turrets by thwartship bulkheads of the same strength as the armour-plated side, and at right angles to it.

In the design of the turret-ship which you forwarded to the Admiralty, there was a clearance between the turret and the bulkheads of three feet.

It is desired to know whether that space is sufficient for your purposes, or whether you require more, and, if so, how much. It is proposed to make the ship entirely subordinate to the turrets; that is to say, to provide first for everything the turrets require, so that they shall in every respect fulfil your wishes; and when this point is settled, to design a ship which shall unite with this armament and arrangement every other good quality of a sea-going ship that can be procured for her; in short, our endeavour is to obtain from you what you consider a perfect two turreted battery, and to design a ship as perfect as we can to carry that armament.

We cannot design the battery without knowing the space required in all directions round the turret.

It is, I believe, their Lordships' intention to send you our design as soon as we have completed it, and it mainly depends upon the information you give us whether the design is completed rapidly and in accordance with your wishes, or the reverse.

(signed) *Robert Spencer Robinson.*

Captain Coles, R.N.,
Madeira Villa, Ventnor.

Captain *Coles* to Controller of the Navy.

Clearance round Turret.

(9721—65).

Sir, Madeira Villa, Ventnor, December 1865.

In reply to your letter of the 30th ultimo, in which you desire to know whether the clearance between the turret and the bulkhead was sufficient in the design of the turret-ship which I forwarded to the Admiralty, on the 3d of last April, I beg to acquaint you that it is sufficient; I also beg to assure you that I shall have great pleasure in giving you any further information relative to the turret and central armament principle that lays in my power.

I have, &c.
(signed) *Cowper P. Coles.*

Admiral R. S. Robinson,
&c. &c. &c.

P.S.—I should have replied to your letter by return of post, but having no clerk, I was unable to do so.

C. P. C.

The Controller of the Navy to Captain *Coles.*

(D. S.—9721.)

Design for Large Ship of War with Revolving Turrets.

(4984.

Sir, 9 December 1865.

Extreme pressure of business has prevented my acknowledging sooner the receipt of your letter of the 3d instant.

I am very much obliged for the information you have given me, and for your assurances of your desire to co-operate with us.

I hope that the design will be completed in about a month, when I shall submit it to the Board of Admiralty, and request them to forward it to you for any remarks or suggestions you may wish to make.

As I have already told you, the whole design of the ship is to be subordinate to the central armament of two turrets, to carry four 15 or 20-ton guns in your revolving turrets.

We propose to give a height of 14 feet to the centre of the upper deck from the water, and a permanent forecastle, which will be 22 feet out of the water.

A fire in the line of the keel ahead and astern will be secured under the protection of armour plates; the side where armour plated is to be stronger than the "Bellerophon's."

We have endeavoured to give good accommodation, fine lines, and as much speed as we can manage.

A large ship appears necessary for this, so we shall exceed the "Bellerophon" by about 400 tons; and with 325 feet length and 1,100 horse power, we hope for a good result.

I should be glad to know if you wish provision to be made for the same number of sets of turning gear for the turrets which you have applied to the "Royal Sovereign."

I am, &c.
(signed) *Robert Spencer Robinson.*

Captain Coles, R.N.,
Madeira Villa, Ventnor.

Captain *Coles* to the Controller of the Navy.

Sir, Madeira Villa, Ventnor, 11 December 1865.

In acknowledging your letter of the 9th instant (received Sunday), referring to the turning gear for the turrets proposed for 20-ton guns, I have to acquaint you in answer to your question whether I wish provision to be made for the same number of sets of turning gear for the turrets which I have applied to the "Royal Sovereign," that I require three feet clearance round the turret as described in my former letter of the 3d instant, which will enable me to arrange the turning gear most suitable, when the time shall have arrived for the minor details of the turrets to be constructed.

With reference to the design of a ship which you inform me is in progress and to be submitted to me when complete, I sincerely wish that your hopes for a good result may be realised.

I have, &c.
(signed) *Cowper P. Coles.*

Admiral Spencer Robinson,
&c. &c. &c.

The Controller of the Navy to Captain *Coles.*

Sea-going Turret-ship.

Armour-plating of Turret.—Slope of Deck.

(9424—65).

(5025.)

Sir, 13 December 1865.

On referring to your letter of the 20th November, which did not come immediately under my notice, I observe that you had already answered some of the questions I had asked you, and suggest that it is very desirable that turrets should have at least the same resisting power in their weakest parts as the side of the ship which is to carry them.

Your suggestion for a 10-inch armour-plating appears to me a very excellent one, and we can at this stage make arrangements for the extra 50 tons of displacement required. I send you, however, two tracings to show you the thickness we propose to give the ship's side, armour-plating, &c., in order that you may, if you think it advisable, modify your plan of armour-plating the turret.

I also wish to point out to you, entirely for your consideration, that very great objections were made by naval officers to the slope of the deck being as much as five degrees, and that we have endeavoured to meet that objection, as shown in the drawing, by giving the deck only the round up it has in the "Bellerophon;" and slightly raising the turret (only four inches) in this way, we have provided seven degrees depression for the gun, an amount considered by the gunnery authorities necessary for a sea-going ship.

I shall be glad to hear, as soon as it is convenient to you, whether you would be satisfied with these arrangements, or whether you would like them modified in any way.

(signed) *Robert Spencer Robinson.*

Captain Coles, R.N.,
Madeira Villa, Ventnor.

Captain *Coles* to the Controller of the Navy.

Sir, Madeira Villa, Ventnor, 14 December 1865.

I beg to acknowledge your letter of yesterday's date referring back to my letter of the 20th ultimo, and to the substance of the armour-plating shown in the drawings of the two turrets for 600-pounders then sent you.

The thickness of armour-plating can be increased or decreased as you may think fit, adding or deducting the difference of weights accordingly. With reference to the slope of five degrees for the deck being objectionable, you will see by reference to the drawings forwarded to you on 3d April 1865, of a one-turret sea-going ship, that it is there given at four degrees, and the arrangement as there shown is what I should prefer; but as the difference of the slope in the deck shown by you and me is but small, I think it is a matter of indifference which is shown in the drawings.

I have, &c.
(signed) *Cowper P. Coles.*

Admiral S. Robinson,
&c. &c. &c.

The Controller of the Navy to Captain *Coles*.

Sea-going Turret-ship.—Armour-plating of Turrets.

(5050.)

Sir, 15 December 1865.

I AM much obliged to you for your letter of the 14th instant, and shall be glad to have the tracings forwarded with my letter of the 13th instant returned.

If you see no objection, we propose to take the 10-inch armour-plated turret as the one to work on.

I am, &c.
(signed) *E. J. Reed*,
for Controller.

Captain Coles, R. N.,
Madeira Villa, Ventnor.

Captain *Coles* to the Controller of the Navy.

Sir, Madeira Villa, Ventnor, 16 December 1865.

IN reply to your letter of the 15th instant, in which you propose to take 10 inches of armour for the thickness of plating on turrets for 600-pounders, by reference to my letter of the 14th instant, you will find that you can take any thickness of armour you like suitable to your vessel, merely allowing for the difference of weight.

I have, &c.
(signed) *Cowper P. Coles.*

Rear-Admiral R. S. Robinson.

The Controller of the Navy to Captain *Coles*.

Sea-going Turret-ship.—Thickness of Armour on Turrets.

(10,045.)

(5066.)

Sir, 18 December 1865.

YOUR letter of the 16th instant, for which I am much obliged, hardly replies to the inquiries made in my two last letters.

Before coming to a decision in this office as to the thickness of the armour-plating to be given to the turrets, we should like to know which arrangement *you* would prefer; and the tracings sent you on the 13th instant, showing you the proposed side of the turret-vessel, was to enable you to tell us, with reference to the side of the ship, how you would wish the turret to be plated.

I am sorry to give you the trouble of writing so many letters, but our desire to conform to your wishes in every way respecting the turrets and arrangements of the central battery can only be carried out by our being clearly and explicitly informed of what those wishes are.

I trust, therefore, that you will not experience any annoyance at being frequently appealed to, and at questions being asked you which call for distinct replies.

I request also that you will have the goodness to return the tracings sent to you on the 13th instant, which are wanted in office.

I am, &c.
(signed) *Robert Spencer Robinson.*

Captain C. P. Coles, R.N.,
Madeira Villa, Ventnor, Isle of Wight.

Captain *Coles* to the Controller of the Navy.

Madeira Villa, Ventnor,
20 December 1865.

Sir,

On my return from Portsmouth, I found your letter of the 18th instant, which I lose no time in replying to, and beg you will not think of apologising for the trouble it gives me in writing the many letters to answer the questions which you may find necessary to put to me for information as to the turrets, for, after so many years of toil, a few letters, more or less, can make no great difference.

You appear not quite to understand about the thickness of plating on turrets for 600-pounders. On November 30th, I sent you two sets of drawings, with a view of being most explicit; one set showing 5½-inch iron, and the other 10-inch iron.

Allow me to point out to you that these two turrets are of the same diameter, and that the thickness of the armour in no way affects their diameter, but only their weight. In forwarding you these two drawings, my intention was to show that any thickness of armour can be used on a turret that may meet the views of the designer of the ship, and to suit the character and displacement of his design; but that I cannot venture to dictate to the designer of a ship what thickness of plate, either on the turret or ship he can afford to carry. With private designers and shipbuilders this is the practice I have invariably followed, and find, from the successful results of their vessels, that it works well. But as you seem to wish me to be more explicit, let me give you further illustration of turrets. For instance, we will suppose—

A to represent a turret with 10-inch iron and 25ft. 4in. in diameter - - - - 10-inch.
B Ditto - ditto - ditto - - - 9-inch.
C Ditto - ditto - ditto - - - 8-inch.
D Ditto - ditto - ditto - - - 7-inch.
C Ditto - ditto - ditto - - - 6-inch.
E Ditto - ditto - ditto - - - 5½-inch.

All you have to do in designing your ship is to allow for the difference of weight of one inch of iron less, and one inch increase of backing;

5½-inch being the minimum and 10 the maximum, giving you six different thicknesses of armour to choose from, all of the turrets being the same diameter.

Excuse this lengthy epistle, but let it assure you that although I am not allowed proper assistance, I am ready to take any trouble in my power to fully explain to you the properties of turrets and central armament.

I have, &c.
(signed) *Cowper P. Coles.*

Admiral Robinson,
&c. &c. &c.

The Controller of the Navy to Captain *Coles.*

New Turret-ship.—Thickness of Turrets.

(10,148.)

(5104.)

Sir, 21 December 1865.

I beg leave to acknowledge with thanks the receipt of your letter of the 20th instant, relative to the thickness of the turrets for the new turret-ship.

I am, &c.
(signed) *Robert Spencer Robinson.*

Captain Coles, R.N.,
Madeira Villa, Ventnor.

Captain *Coles* to the Secretary of the Admiralty.

Sir, Ventnor, 10 January 1866.

Six months having elapsed since the Committee on a sea-going turret-ship recommended that one with two turrets should be built, and it being four months since you informed me in your letter, 14 September 1865, that when the Controller succeeded in laying before their Lordships drawings of a vessel to carry at sea two revolving turrets on my plan, that before carrying out the design it will be submitted to me for any observations I may make, and I see by the public journals that a ship is ordered to be built at Chatham, I have the honour respectfully to beg you will inform me if that is the case, and to let me know when I may expect the drawings.

I have, &c.
(signed) *Cowper P. Coles.*

W. G. Romaine, Esq., C.B.,
&c. &c. &c.

Report of the Controller of the Navy.

Sea-going two Turret-ship, design for D. S., 261.

(No. 144.)

Admiralty, S. W. 10 January 1866,

In forwarding this design for a turret-ship which I have had carefully prepared in accordance with their Lordships' directions, I beg leave to observe that I am quite aware it is open to considerable objections: objections belonging to the nature of a turret-ship intended for sea-going purposes, and which it has not been possible entirely to obviate.

The points to which I referred in my submission of 13th July 1865 (based on the objections made by the Committee and many witnesses whom they examined), relative to Captain Coles' design, have engaged my anxious attention; they were:—

1. The insufficient amount of defensive armour.

2. The chance of disabling the offensive power of the ship (which in the turret system is concentrated in few very heavy guns) by an injury to the turret at the point where it passes through the deck. Should this happen, even in a two turret-ship, one half the offensive power is lost; and this result might follow from a single shot or shell.

3. The position of the turrets which would in all respects be best for offensive purposes, namely, near the extremities, would in all probalility destroy the sea-going qualities of the vessel.

4. The necessity of falling bulwarks, which prevented many indispensable arrangements relative to the anchors from being satisfactorily carried out, exposed the crews to being washed off the deck in bad weather, and therefore required a great height of deck out of water to make the ship habitable and dry.

I will now explain to their Lordships how far these serious objections have been met in the design which is now before them.

The first and third points are so intimately connected that they must be considered together.

Perfect protection to the turret-ship by defensive armour involves, as I explained in my submission already referred to, plating the ship up to the upper deck completely round the whole length; but for many reasons connected with the sea-going qualities of armour plated ships, that perfect protection has been given up, and an imperfect and partial protection has been had recourse to.

If the sea-going qualities of the ship would have allowed the turrets to be placed near the extremities, as in the design A. (forwarded with my submission of 13th July 1865), the defensive armour would have been perfect, and the range of the guns uninterrupted round the bow and stern; but as such a position was undesirable, and might have defeated the design of a sea-going ship, their Lordships decided that the two turrets should be placed near the centre of the ship, and that perfect protection should be given up.

Accordingly, in this design the armour plating extends completely round the ship only as a belt, and as an enclosure to the central battery of the two turrets.

Athwart ship vertical bulkhead protects the gun under the forecastle, and descends to the belt forward.

Though this belt is 4 ft. 6 in. above the waterline, and there meets an iron deck, I am aware that this protection is imperfect. It is, however, greater than Captain Coles has thought it necessary to give in any of his designs with which I am acquainted.

It is as well to add, that in order to give even greater resistance to shot than that afforded by the "Bellerophon's" side, it is proposed either to add to the thickness of the backing behind the armour plates, or, which is no doubt a better plan structurally and defensively, to make the armour plates seven inches thick.

It was desired, if possible, to restrict the dimensions of the turret-ship to those of the "Bellerophon," but the weights to be carried, including the guns, turrets, armour and engines, proved so much greater than that ship's, that it was found necessary to increase the dimensions of the turret-ship by about 853 tons, without which, all the requisite qualities, including stability, could not be obtained.

The second point, the chance of a shot or shell disabling a turret by destroying the deck where the turret passes through it, and so wedging it by splinters and fragments of projectiles, exists in this design, as in all other designs for turret-ships.

To what extent shot may be deflected by the iron deck and glacis plates provided for that purpose, we are in ignorance.

It is much to be desired that this point should be tested by experiment, as recommended in my submission of 13th July last.

The whole offensive power of the ship would not, however, be destroyed if such an accident should occur to the turrets.

A bow and stern gun has been provided, which, however, cannot be well heavier than a 7-ton rifled gun, the former under a forecastle, and protected by armour plating, the latter also partially protected but under the upper deck.

In relation to this, however, it may be objected that the bow gun could not be used at all if either of the turrets was firing its guns trained well forward, as the men could not stand at the gun.

This point, and the possibility of the decks withstanding the effect produced by heavy rifled shot fired along them for a considerable distance have not yet been determined experimentally. I submit that it is very desirable that this should be done.

The fourth point, the necessity for falling bulwarks entailing the grave inconveniences already referred to, has been met by the construction of a standing forecastle, to which all the anchor gear can be properly secured; it also serves for a shelter for the crew, and to break and throw off the heavy seas which might otherwise roll along and sweep the decks.

A further security might no doubt have been obtained by carrying the deck to a height of 16 feet out of the water, instead of limiting it to 14 feet, its present position; but to do this would have required a still larger ship, more engine power, and more cost, besides presenting a much larger target to shot.

I think it will be more satisfactory to their Lordships to have these objections which may be made to this design at once acknowledged, and that they will see that they are unavoidable.

I should have been glad to have had this ship designed with sides as thick as the "Hercules," but the dimensions required would then have been so enormous that they would have appeared altogether preposterous for a ship of six guns.

Provision has been made for masts and rigging as in the "Bellerophon."

Tripod masts may be substituted, if upon further acquaintance they are approved.

The usual statement is appended to the drawings, with a report from the chief constructor, to which I desire to call their Lordships' attention.

Should this ship be constructed as she is designed, and no important deviation be made in the construction and fitting of the turrets, the cost of the hull fitted for sea ought not to exceed 280,445 *l.*; but as the cost of fitting turrets of such large diameter, and to be plated with 10-inch iron cannot be accurately known, the estimate which should be made to represent the outside for the cost of the ship will amount to 300,000 *l.*

In conclusion, I beg leave to assure their Lordships that every person in this office has given me all the assistance possible in working out this design, on which in their several departments they have shown the same zeal and application in overcoming difficulties which they have always done when employed on other designs; and I state this to meet objections which have already been made.

I submit for their Lordships' approval, notwithstanding all that has passed, that a tracing of this design should be forwarded to Captain Coles for any observations he may wish to make upon it.

(signed) *Robert Spencer Robinson.*

P.S.—Their Lordships will observe, that in this design the subject of a balanced rudder has not been adverted to.

It has advisedly been postponed until the rudder of the "Bellerophon," which is on this principle, has been tried at sea.

(signed) *R. S. R.*

Two Plans accompanied this Report—

One for 6-inch armour plating, and 24 inches of teak backing.

The other for 7-inch armour plating, and 12 inches teak backing.

The latter was approved by their Lordships.

The Secretary of the Admiralty to Captain *Coles.*

Sir, Admiralty, 13 January 1866.

I AM commanded by my Lords Commissioners of the Admiralty to call upon you to state whether the letter which appeared in the "Standard" newspaper of the 10th instant, on the subject of cupola ships, bearing your signature, was written by you.

I am &c.
(signed) *C. Paget.*

Captain C. Coles, R.N.,
Madeira Villa, Ventnor, Isle of Wight.

Captain *Coles* to the Secretary of the Admiralty.

My Lord Ventnor, 16 January 1866.

In reply to your Lordship's letter of the 13th instant, I beg to state, for the information of the Lords Commissioners of the Admiralty, that the communication which appeared in the "Standard" newspaper of the 10th instant, on the subject of turret-ships, as well as that which appeared in the "Standard" of the 12th instant, in correction and explanation thereof, were written by me as inventor of the turret system, and with a view of correcting some misapprehensions which might exist in the public mind in consequence of a leading article in the "Times" of the 1st instant, as well as to demonstrate to the public that the strongest reasons exist to justify the expenditure to be incurred in building the sea-going turret-ship, which from the public journals, I understand has been ordered by their Lordships.

Since publishing my answer to the comparative merits of turrets and broadsides made in the article in the "Times," I find from further statistics received that my former comparisons have been made under the greatest disadvantage to the turret system, and therefore beg to enclose their Lordships the following remarks and notes previous to their publication, and should their Lordships think I have overstated the arguments in favour of turrets, or wish any corrections, I shall have great pleasure in considering their views.

I have &c.
(signed) *Cowper P. Coles.*

Lord Clarence Paget,
&c. &c. &c.

Enclosures.

1. Remarks 2, Two Tables on Turret and Broadside ships.
2. Letter in "Standard," 12th January 1866.
3. "Engineer," 5th January 1866.
4. "Engineering," 5th January 1866.

The Secretary of the Admiralty to Captain *Coles*.

Sir, Admiralty, 19 January 1866.

I am commanded by my Lords Commissioners of the Admiralty to acquaint you that the attention of my Lords has been called to letters published in the "Standard" of the 10th and 12th instant, and stated by you in a letter of the 16th instant to have been written by you.

My Lords have more than once had occasion to disapprove the course pursued by you with reference to your plans, and regret that, instead of cordially co-operating with the Controller of the Navy in the endeavour to solve a most difficult problem, you have preferred to publish disingenuous statements, and reflections on officers employed under the Board of Admiralty.

Every allowance has been made for you as an inventor, and as the advocate of your own plans; and my Lords have therefore abstained from noticing publications in which, whilst employed under the Board of Admiralty, and receiving special pay for your services, you have nevertheless repeatedly attacked in the public press the officers of the department with whom you have been requested to co-operate. My Lords had hoped that their forbearance would not have been misunderstood, but the tone and spirit of your letter of the 10th have destroyed any such hope, and my Lords can no longer expect any useful co-operation or harmonious working between you and the officers of the Controller's Department.

My Lords regret that they can no longer sanction your employment in connection with the department which is engaged in the construction of a sea-going turret-ship, since it is manifest that all friendly and confidential communications between you and the officers, with whom you should have acted, are rendered impossible by the course which you have deliberately pursued.

My Lords are therefore compelled to cancel the order which had been given for allowing you the opportunity of inspecting and advising upon the plans for a sea-going turret-ship which have been now completed.

The allowances made to you for your services in connection with building and fitting turret-ships will therefore cease from this date.

I am &c.
(signed) *C. Paget.*

Captain C. Coles,
Madeira Villa, Ventnor, Isle of Wight.